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ABSTRACT

Mathematics and the use of mathematical thinking should be much more than what has been traditional school arithmetic. Much of the mathematical reasoning can be developed and experienced out of school, particularly in the home. This material contains recording forms and worksheets for activities for the Level Three experiences. Pupils are to complete these as part of their learning experiences. Forms and worksheets are included for all of the concepts and skills of the Level Three program. (YP)

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MEANINGFUL MATHEMATICS

LEVEL THREE

[illegible]

[illegible]

[illegible] A. DEAN HENDRICKSON, PH.D.

[illegible] NATIONAL SCIENCE
[illegible]

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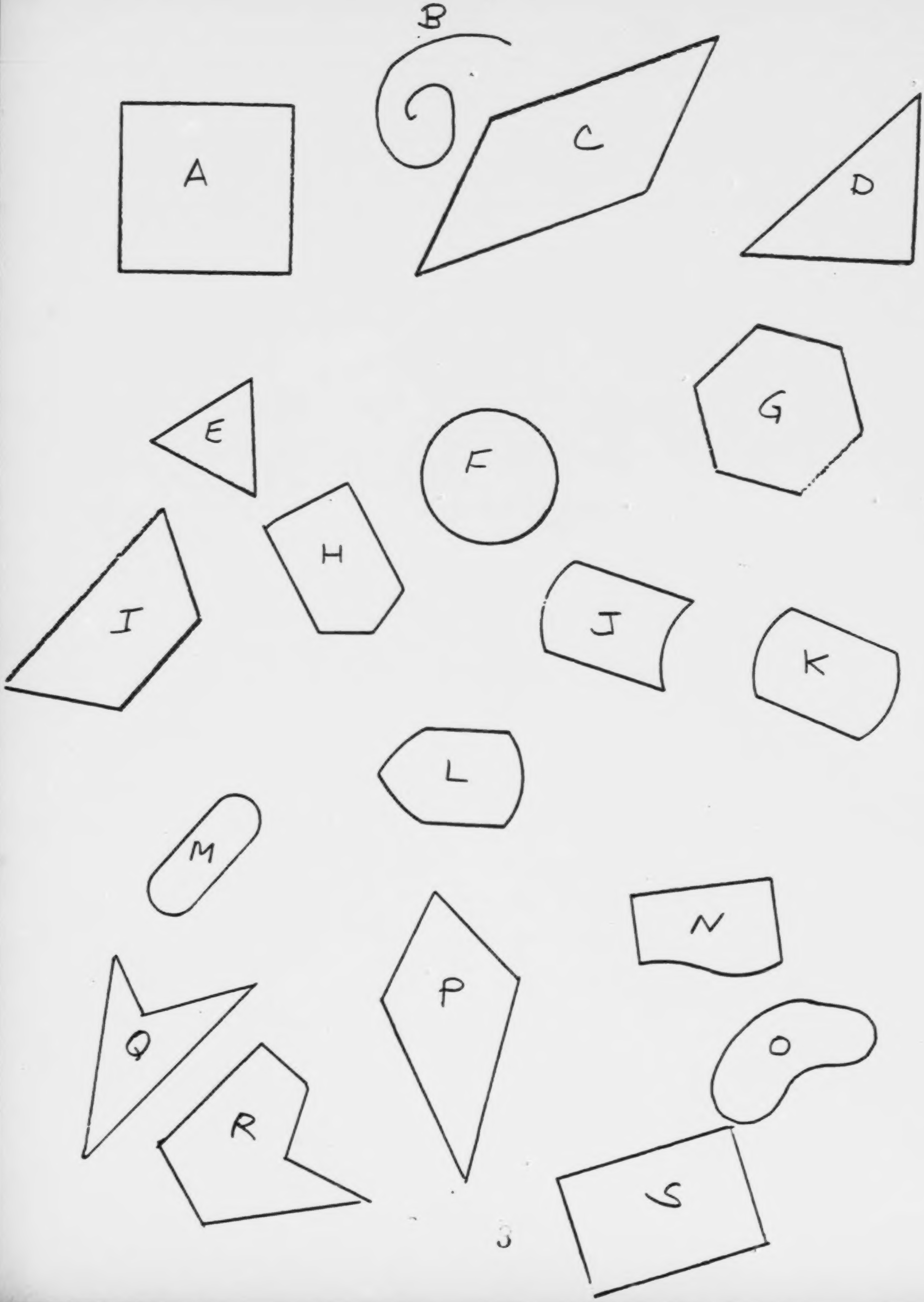
B
A
C
D
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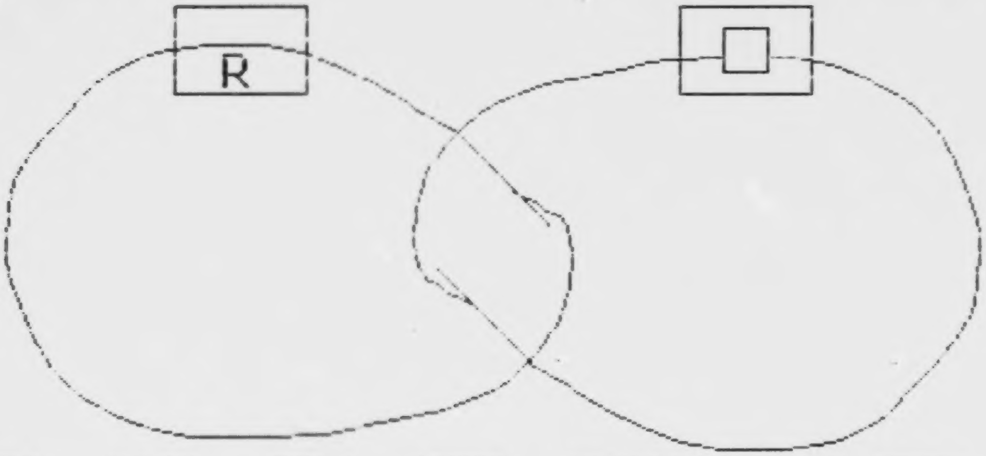
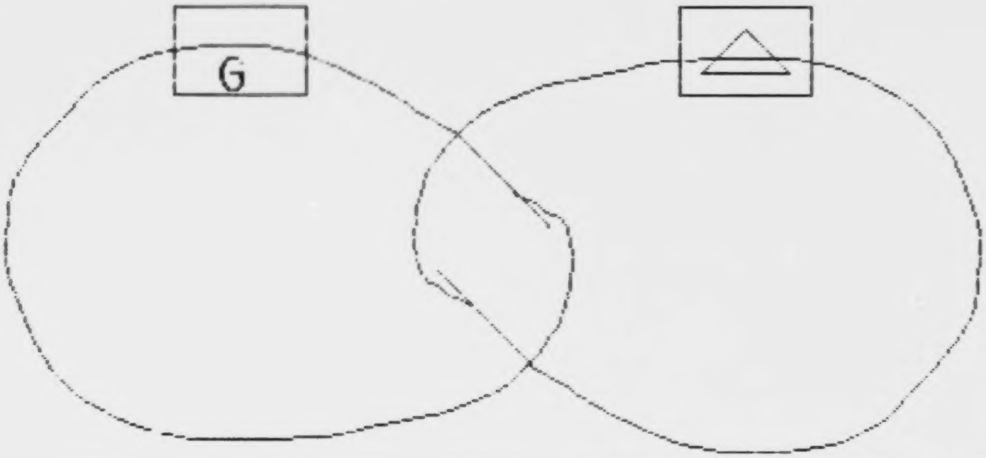
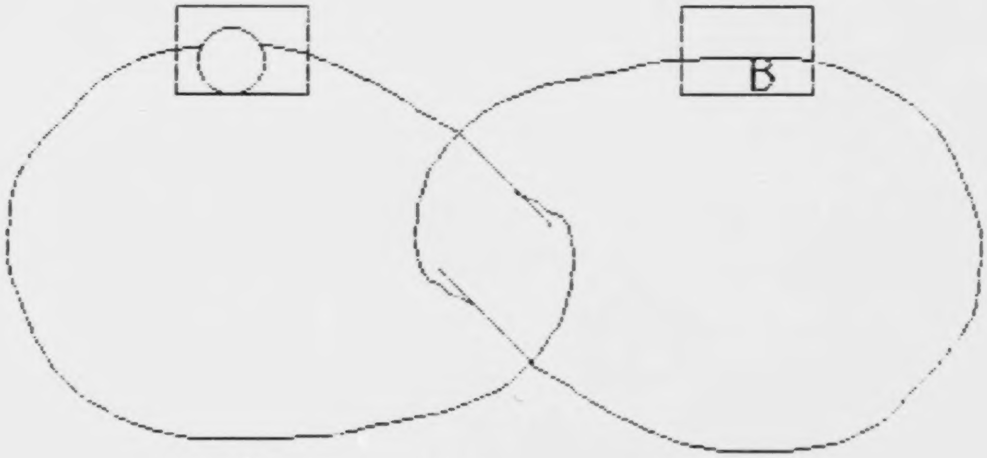
E
F
H
I
J
K
L
M
N
P
Q
O
R
S

Mathematician:________________________________

"I used the LARGE pieces and sorted them according to the labels on the strings. I drew the pieces and colored them to show how I sorted them."

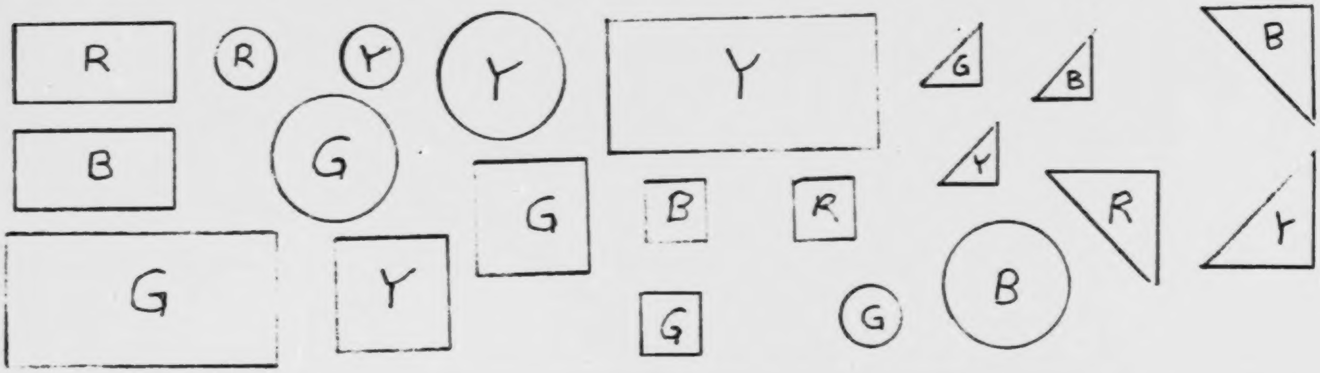






Mathematician: ______________________________

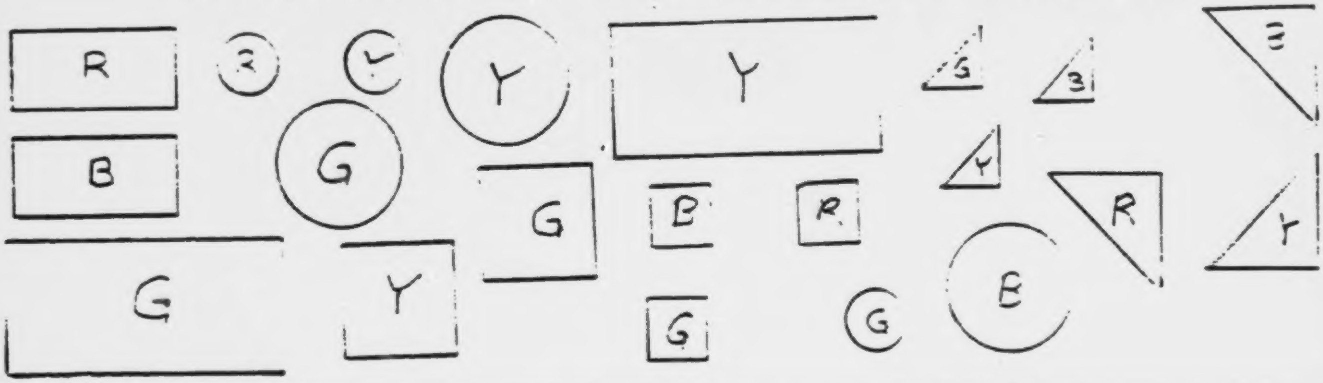
"I made pictures of the blocks that belonged in each group."


R
R
Y
Y
Y
G
B
B
B
G
G
Y
G
B
R
Y
R
Y
G
G
B

Red	**Not Red**
Large	**Not Large**
Square	**Not Square**

Mathematician:______________________________________

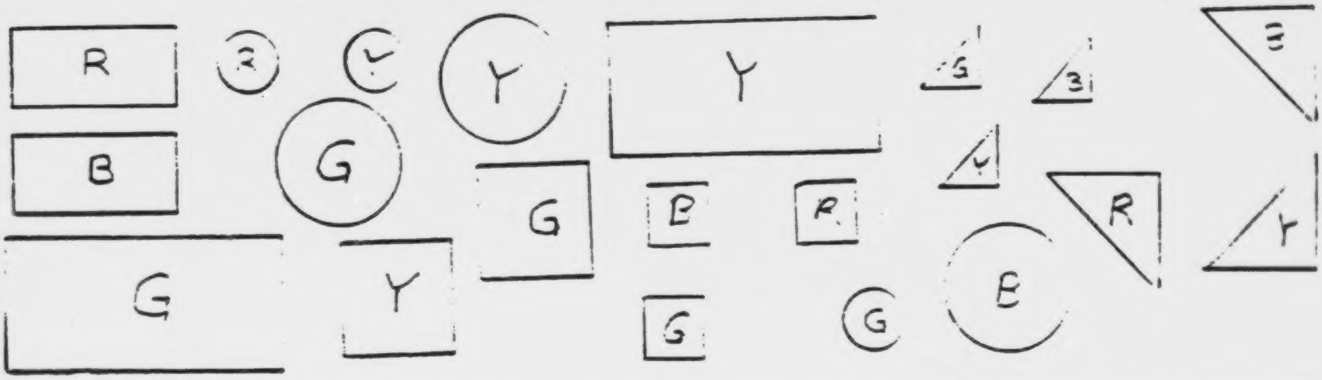
"I made pictures of the blocks that belonged in each group."


R
3
Y
Y
Y
G
3
E
B
G
G
B
R
Y
R
Y
G
Y
G
G
B

Triangle	**Not Triangle**
Blue	**Not Blue**
Circle	**Not Circle**

Mathematician: ____________________

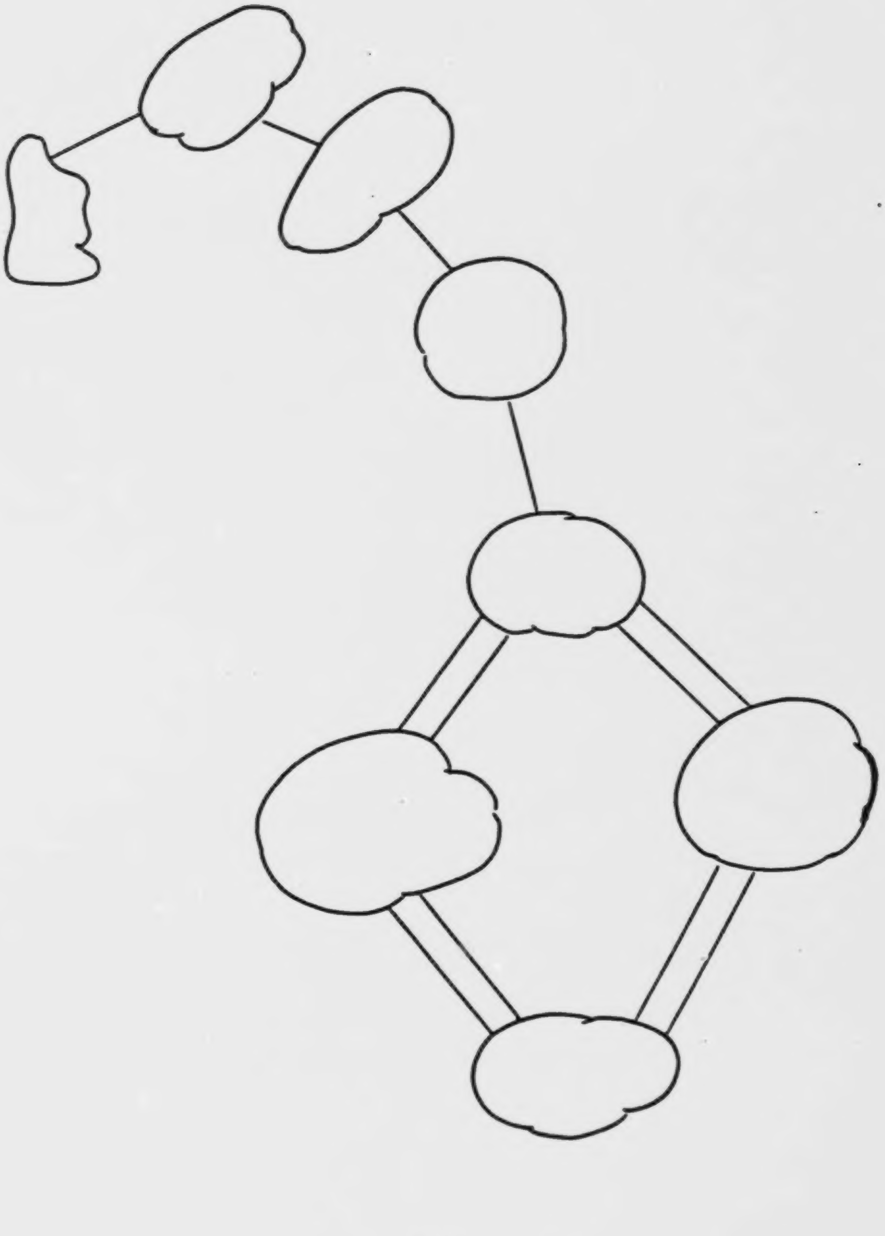
"I made pictures of the blocks that belonged in each group."


R
B
G
Y
G
Y
Y
G
B
R
G
G
B
R
Y

Green	Not Green

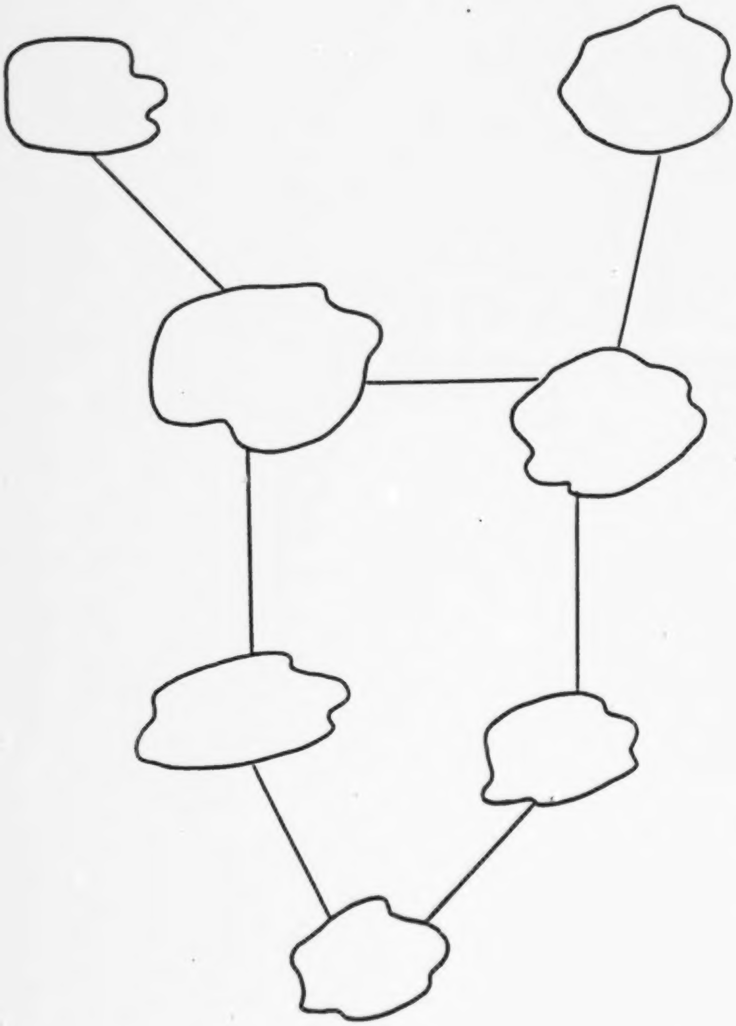
MATHEMATICIAN:______________________________

"I have traced the pieces and colored the shapes to show how I solved Logic Puzzle #1."



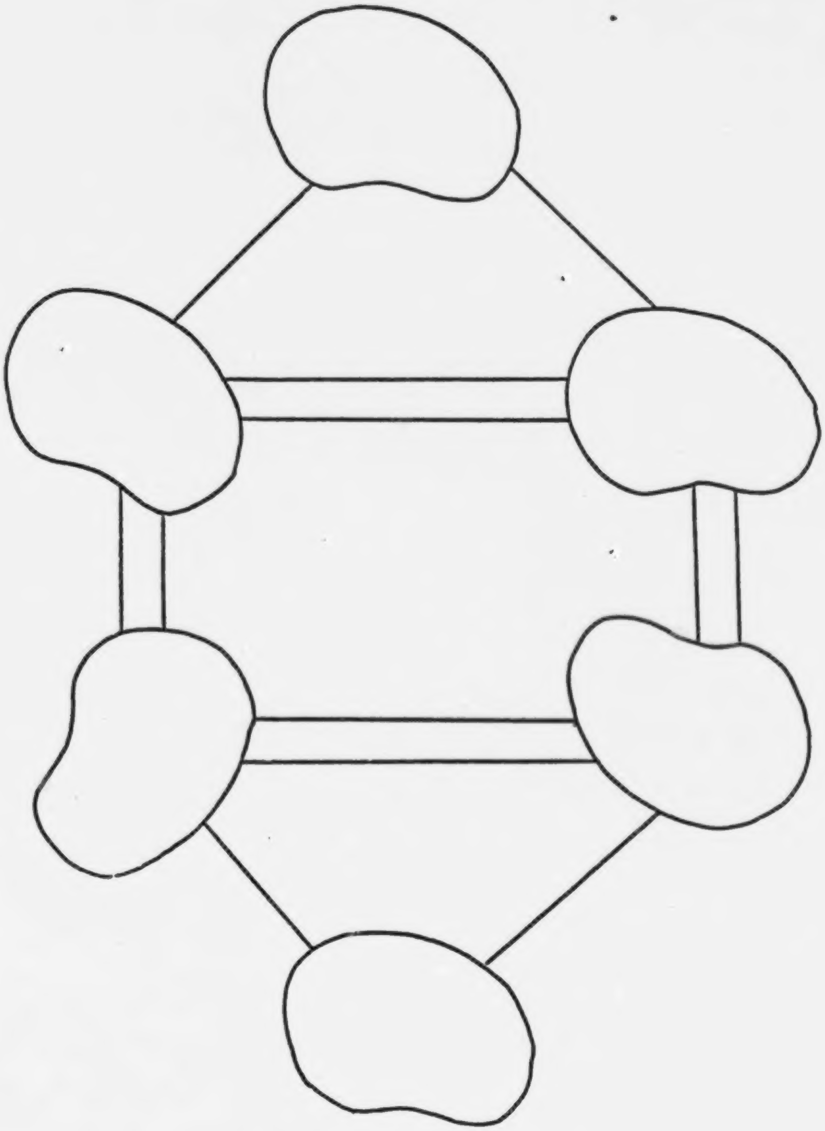
MATHEMATICIAN:______________________________

"I have traced the pieces and colored the shapes to show how I solved Logic Puzzle #2."



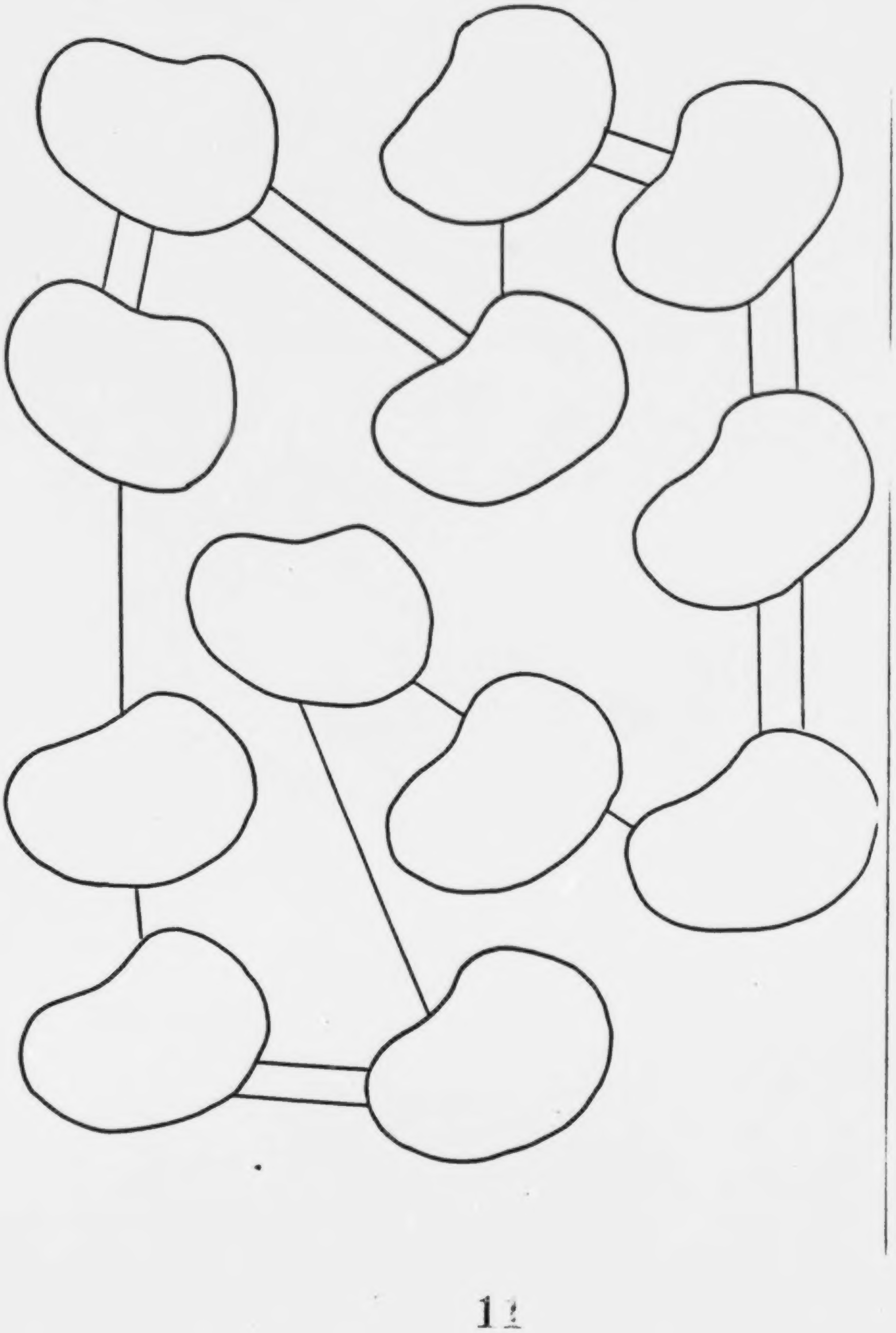
MATHEMATICIAN:______________________________

" I have traced the pieces and colored them to show how I solved the Logic Puzzle #3."



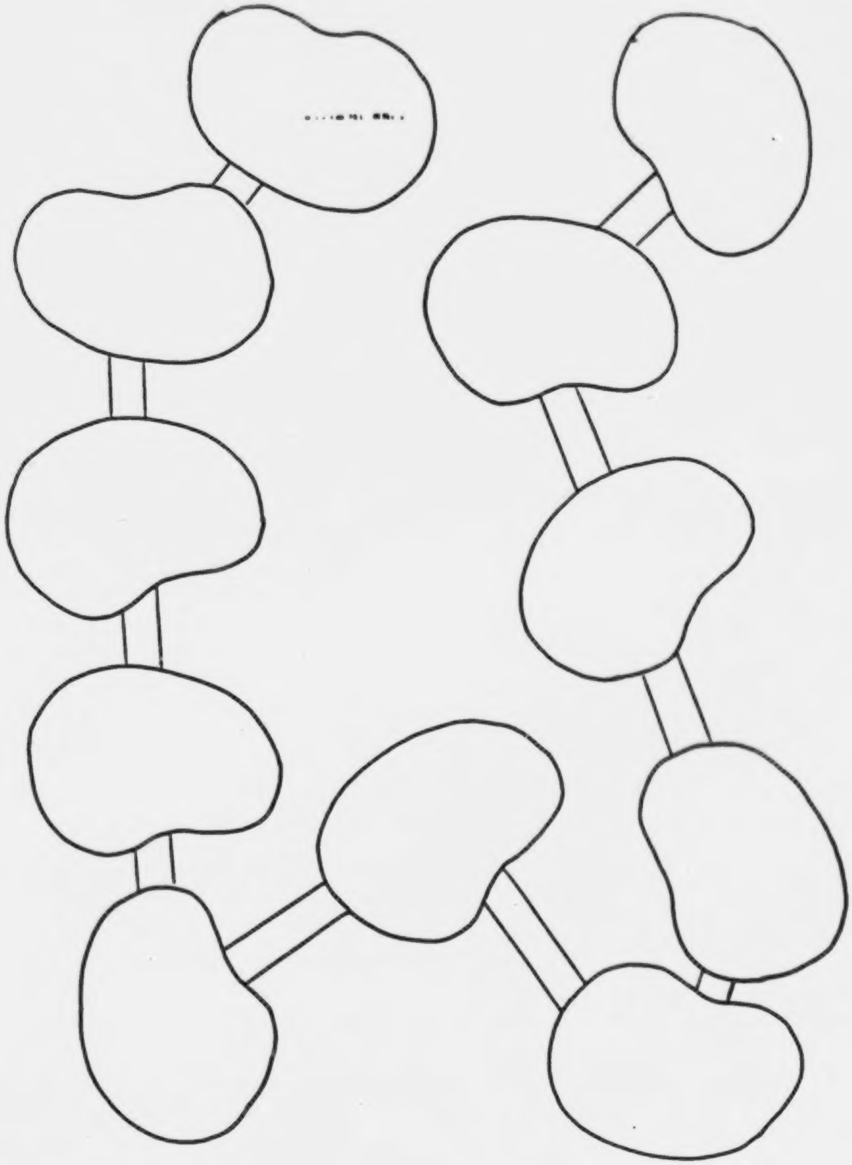
MATHEMATICIAN:________________________________

" I have traced the pieces and colored them to show how I solved the Logic Puzzle #4."



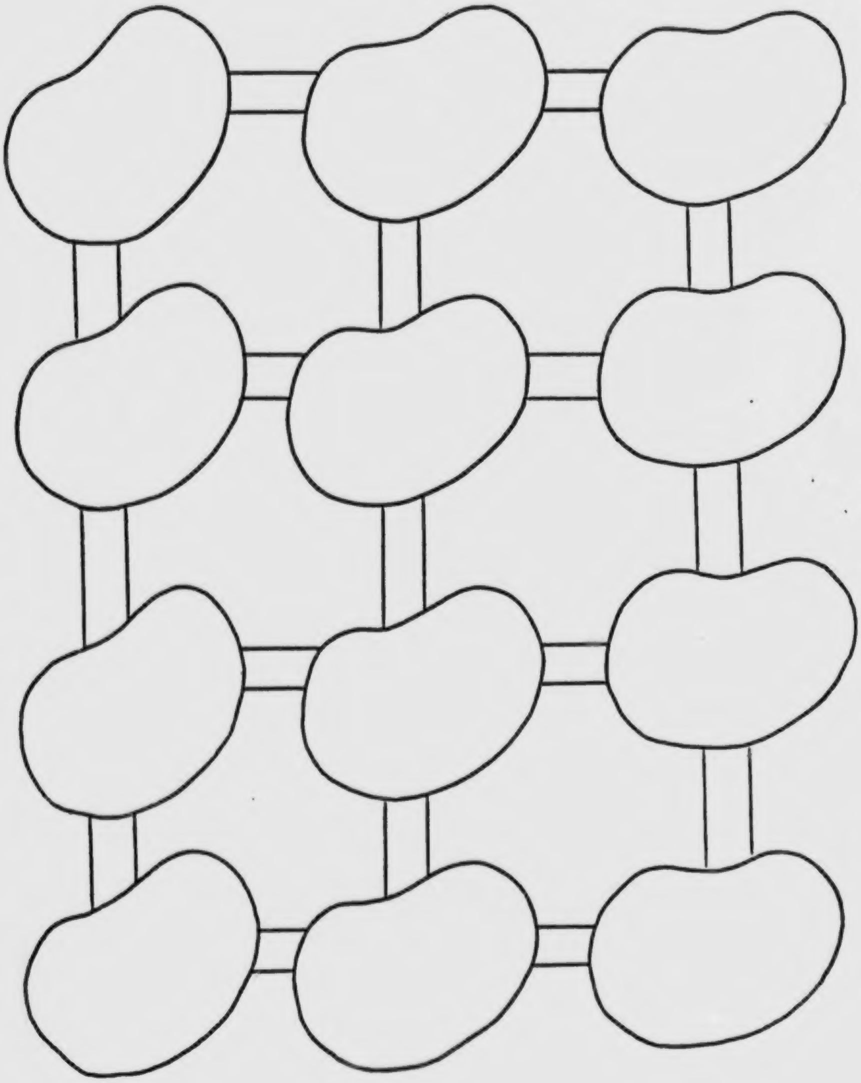
MATHEMATICIAN: ______________________________

" I have traced the pieces and colored them to show how I solved the Logic Puzzle #5."



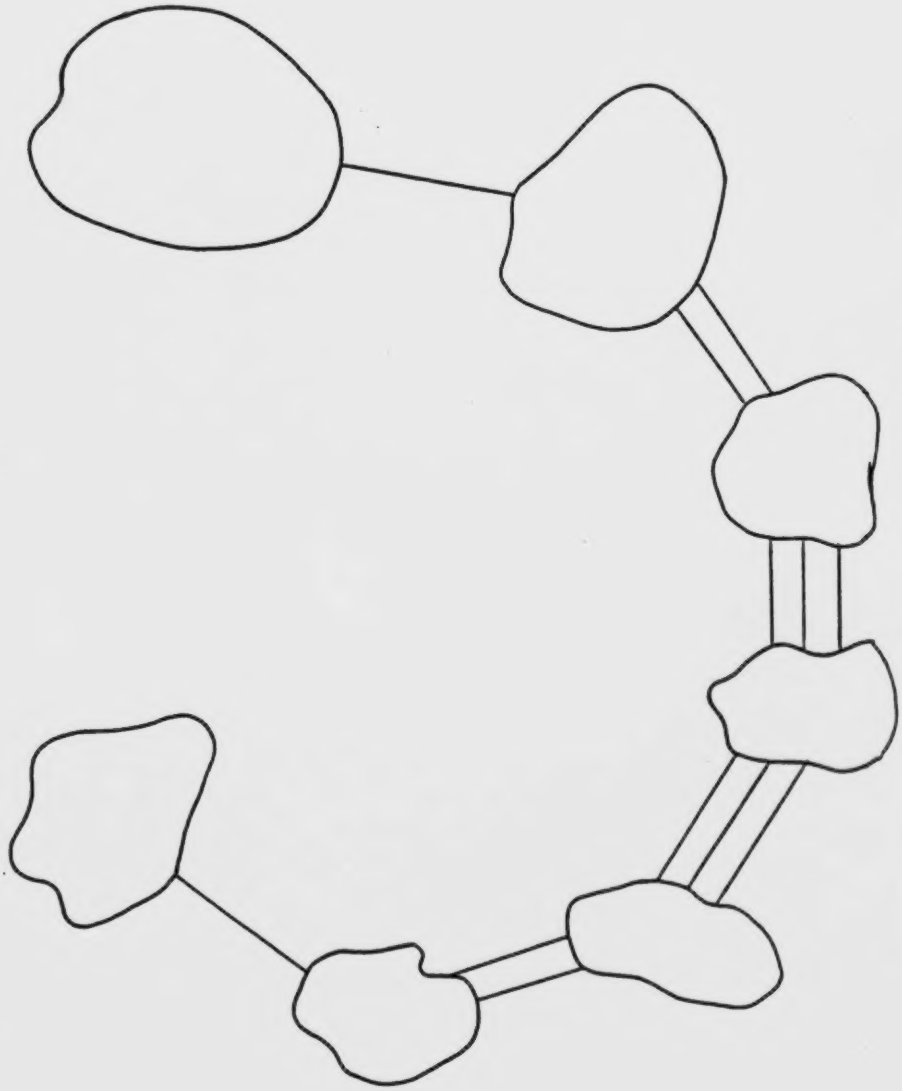
MATHEMATICIAN:________________________________

" I have traced the pieces and colored them to show how I solved the Logic Puzzle #6."



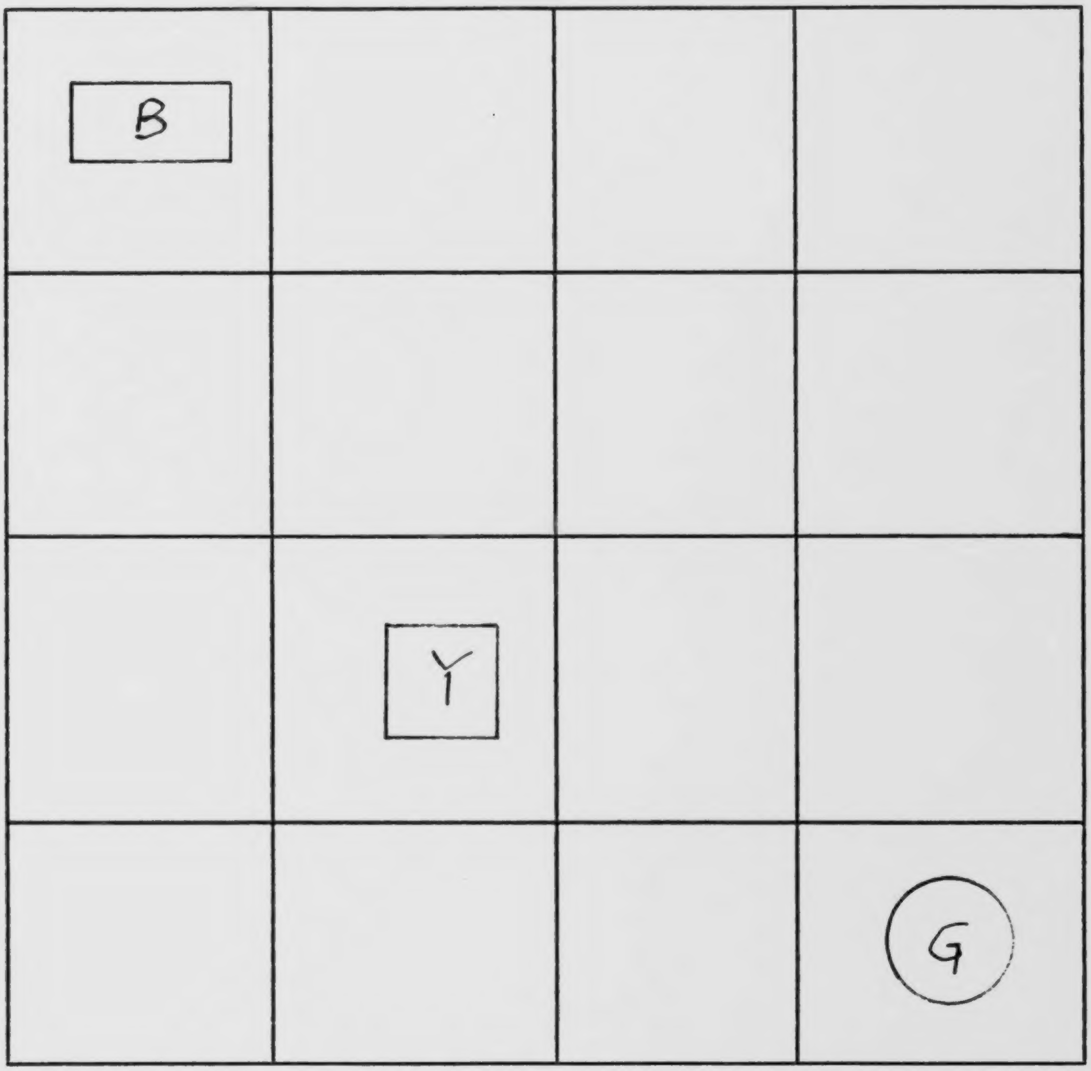
MATHEMATICIAN:________________________________

" I have traced the pieces and colored them to show how I solved the Logic Puzzle #7."



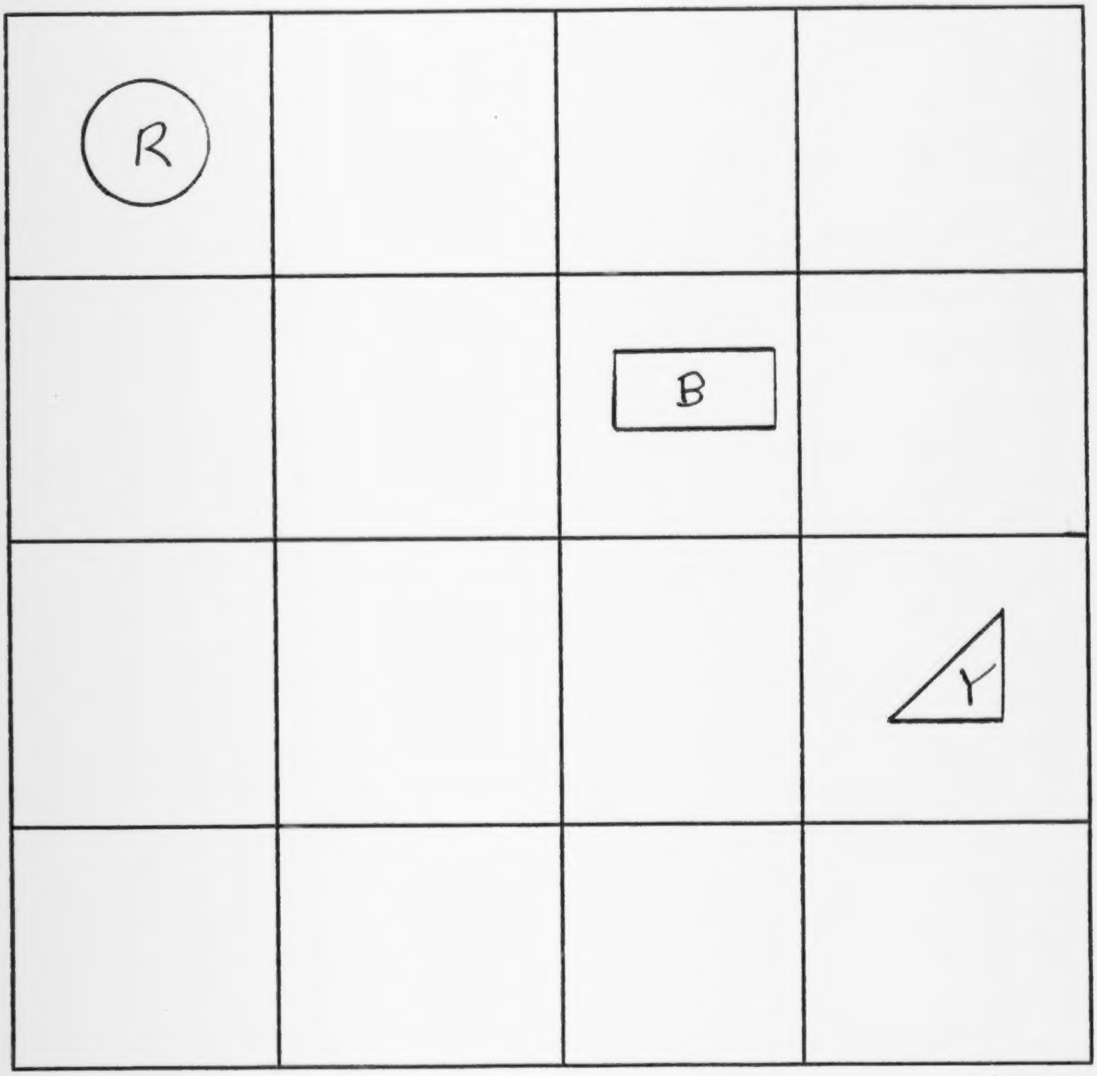
Mathematician:____

"I traced the shapes that belonged in each of the matrix puzzles."



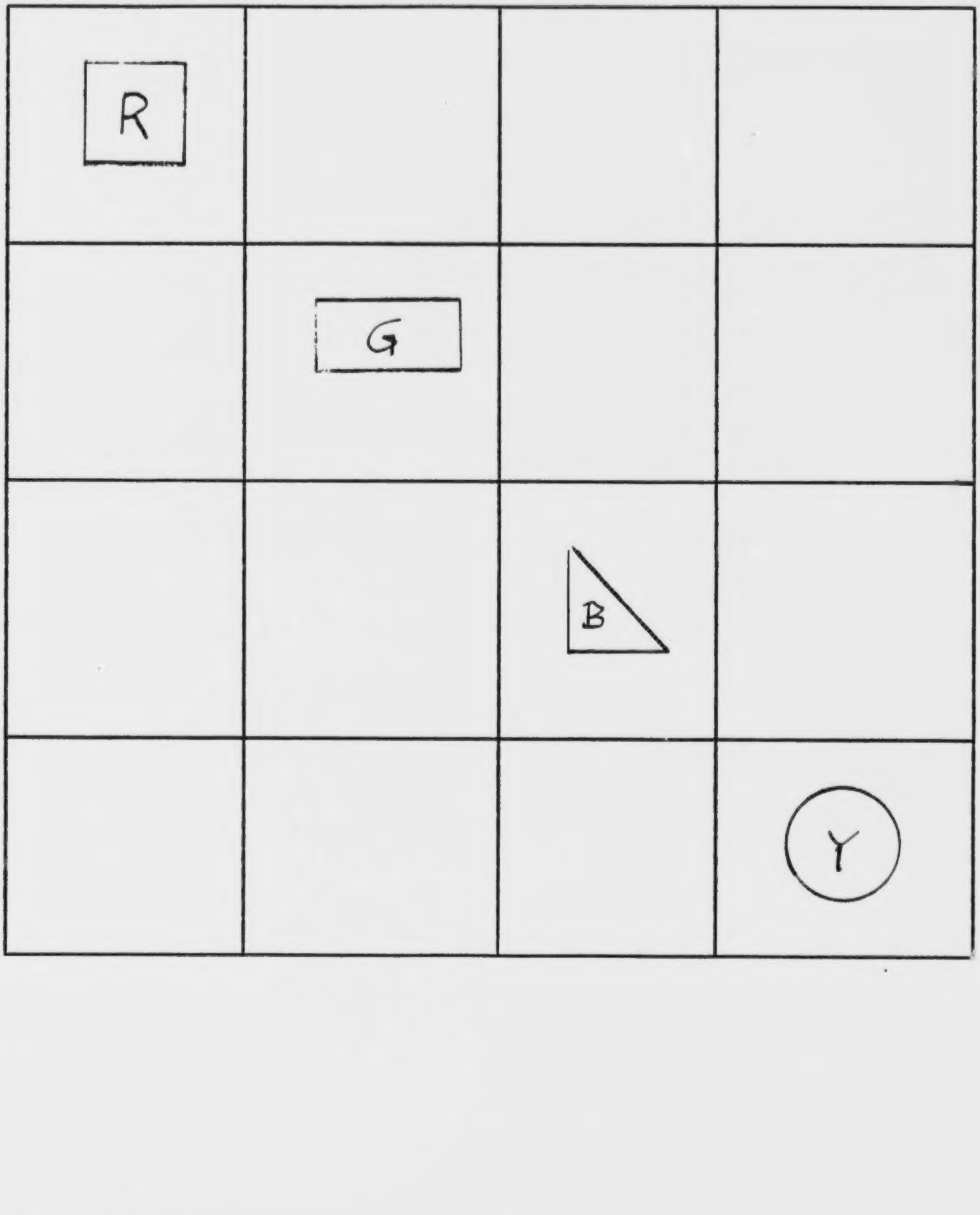
Mathematician:____

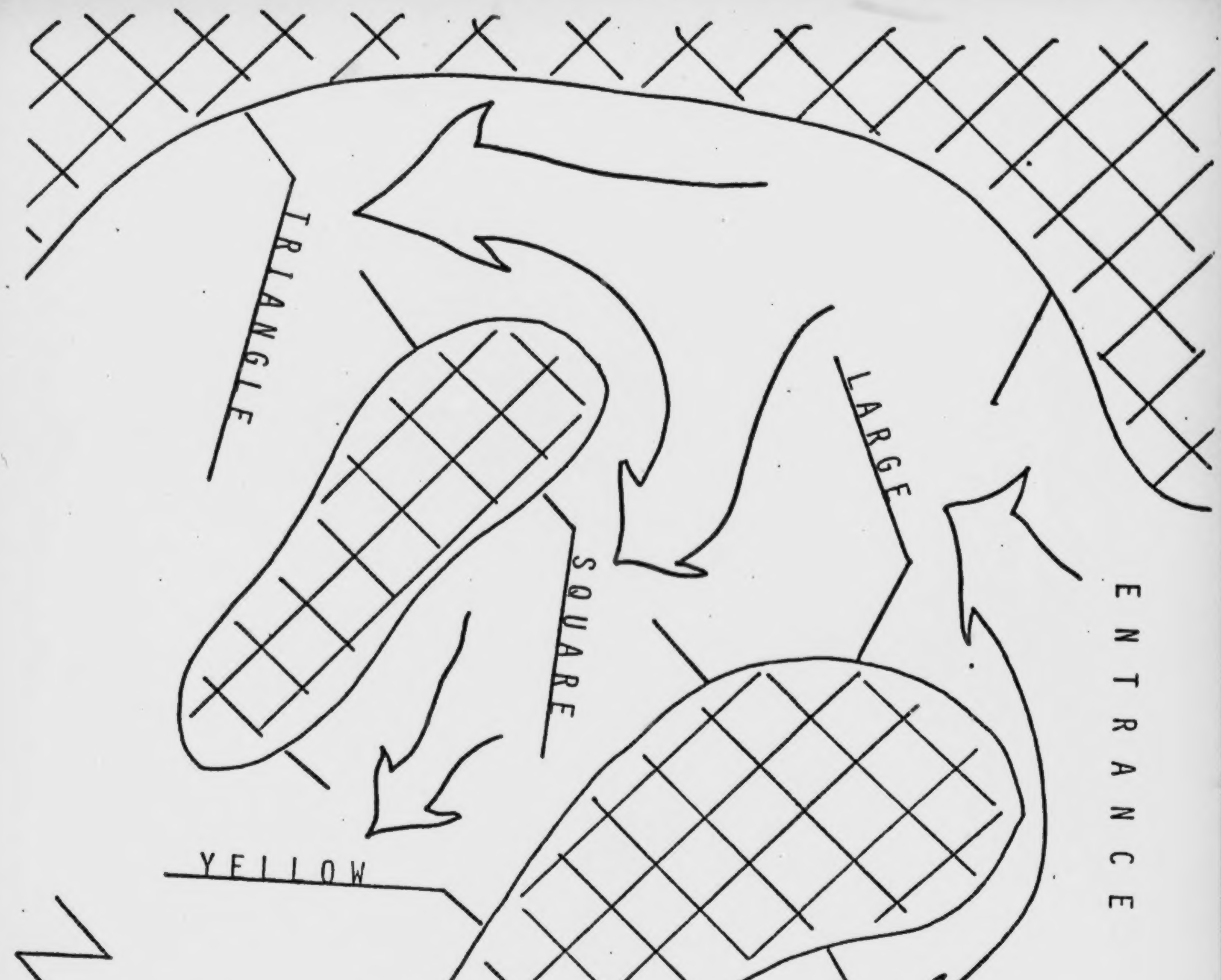
"I traced the shapes that belonged in each of the matrix puzzles."

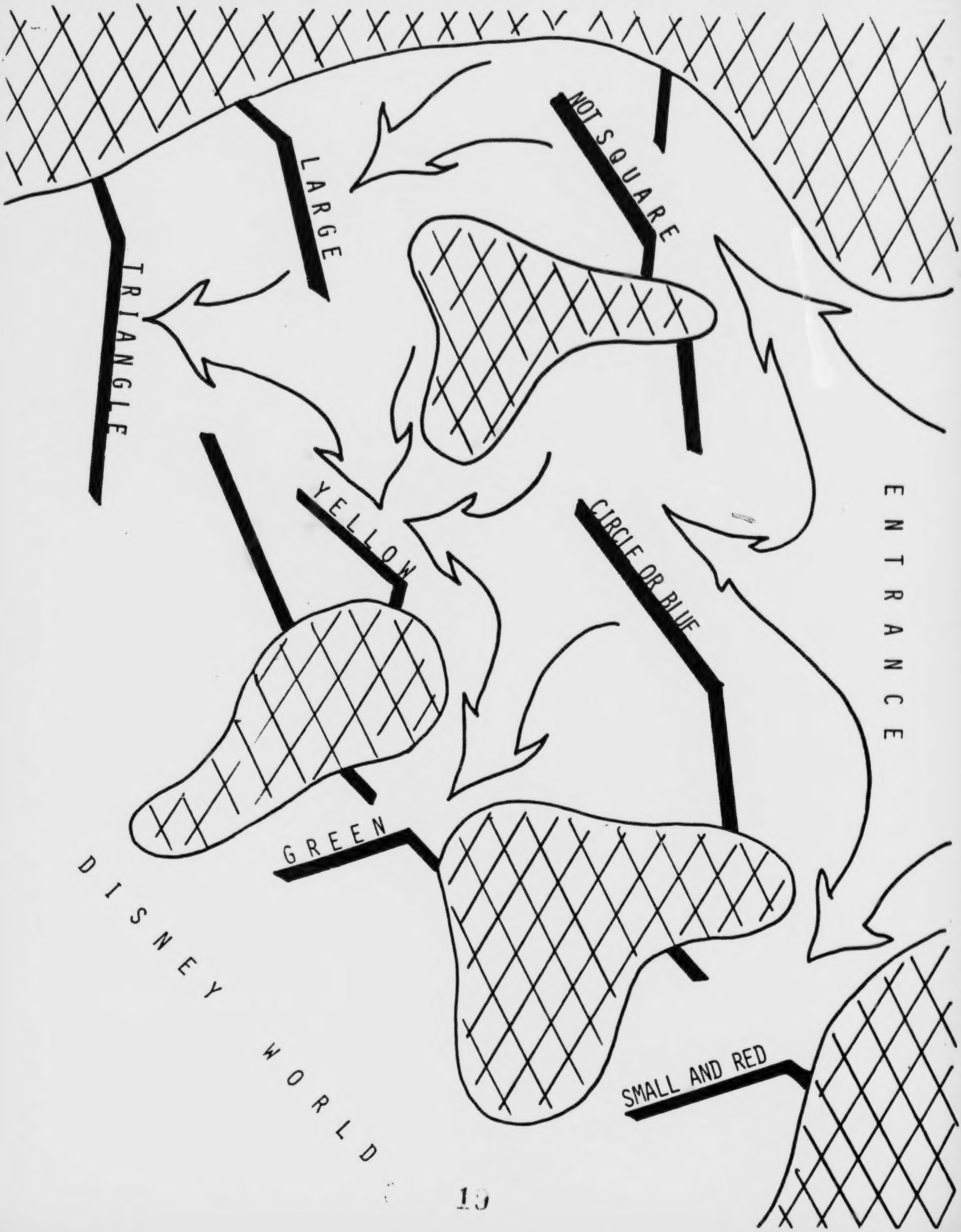


Mathematician:____

"I traced the shapes that belonged in each of the matrix puzzles."




ZOO AREA
ENTRANCE
TRIANGLE
LARGE
SQUARE
YELLOW
GREEN
CIRCLE
SMALL
RED


NOT SQUARE
LARGE
TRIANGLE
YELLOW
CIRCLE OR BLUE
ENTRANCE
GREEN
DISNEY WORLD
SMALL AND RED

MATHEMATICIAN:____________________________________

" I have traced and colored the shapes that made it into DISNEY WORLD.."

MATHEMATICIAN:____________________________________

" I have traced and colored the shapes that made it into the ZOO."

Mathematician:____

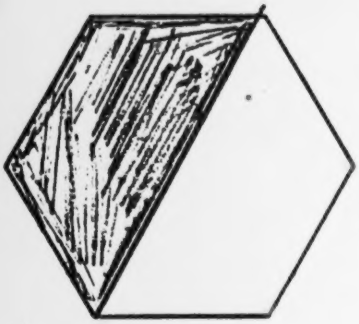
"I used number slides to solve the number sentences."

2 + 4 = □	5 = □ - 14	5 - 1 = □
□ = 12 + 9	7 = 19 - □	□ = 19 - 14
8 + □ = 19	□ = 18 - 14	8 = □ - 3
□ + 11 = 15	20 - 5 = □	7 = 16 - □
16 = 9 + □	18 - □ = 13	9 = 18 - □
18 = 12 + □	□ - 6 = 12	12 = □ - 3
□ = 14 + 3	9 - □ = 2	6 = □ - 11
□ = 14 + 6	□ = 17 - 14	4 = 16 - □
18 = □ + 5	14 = □ - 5	20 - □ = 6
19 = 6 + □	16 = □ - 1	20 - 7 = □

MATHEMATICIAN:______________________________

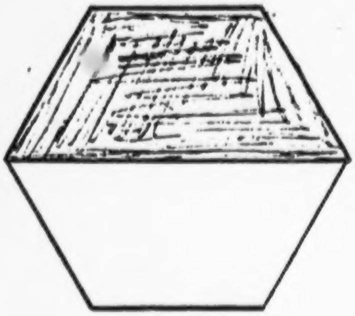
FRACTIONS

Cover the shaded portion of each hexagon (yellow) with the pieces asked for and write the fractions.



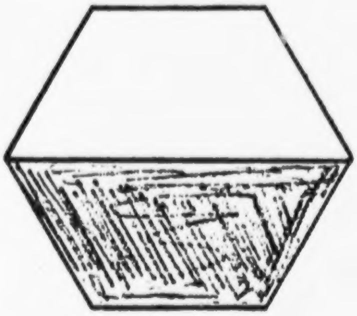
RED

$\frac{1}{2}$



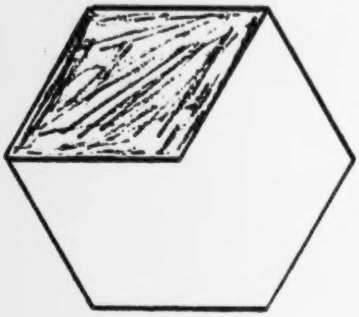
GREEN

____



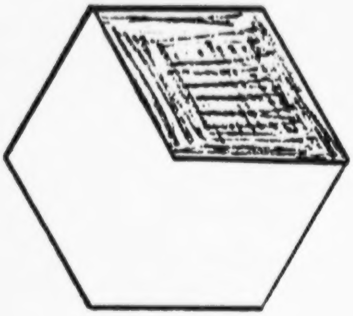
GREEN & BLUE

$\frac{1}{6}$ + ____



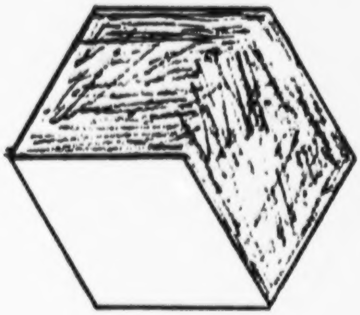
BLUE

____



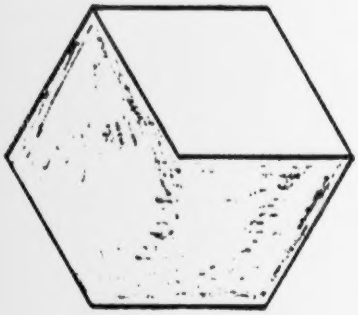
GREEN

____



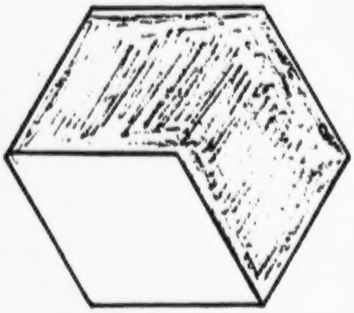
BLUE

____



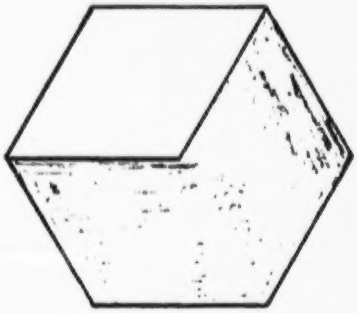
GREEN

____



GREEN & BLUE

____ + ____



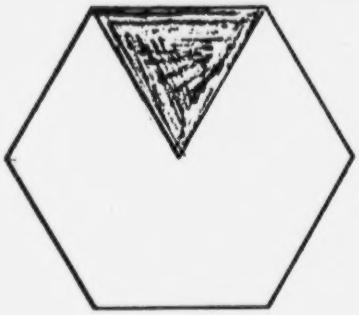
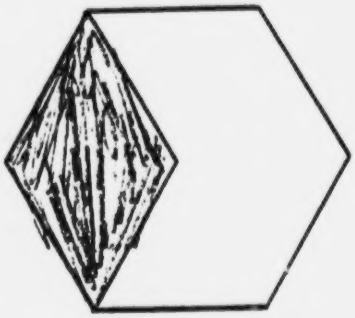
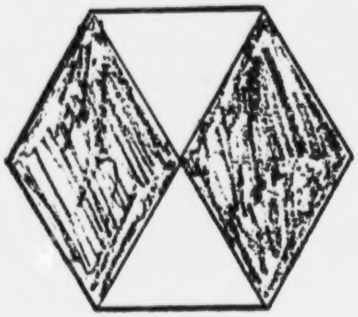
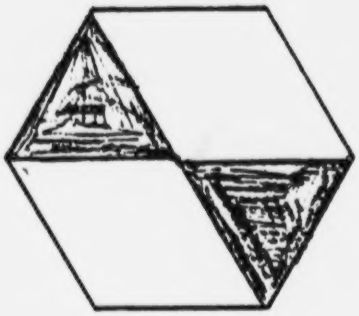
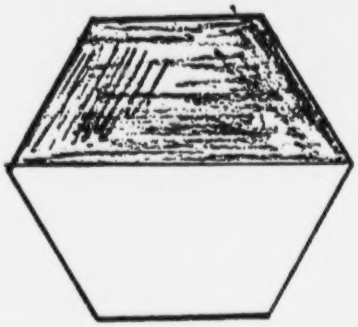
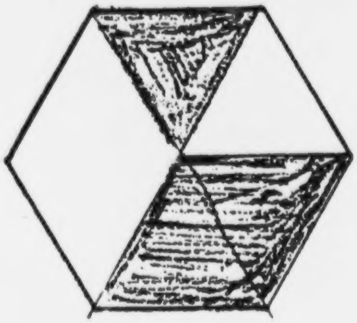
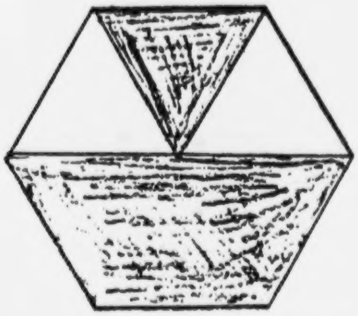
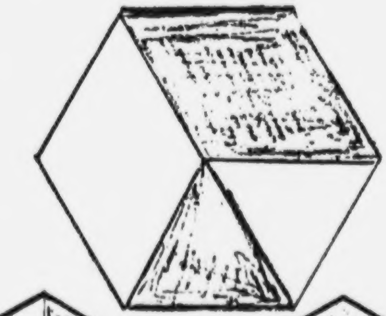
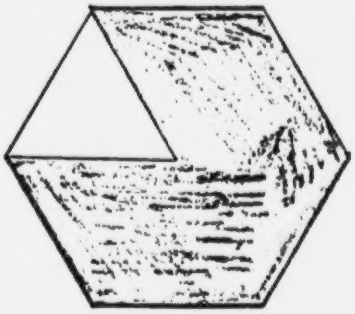
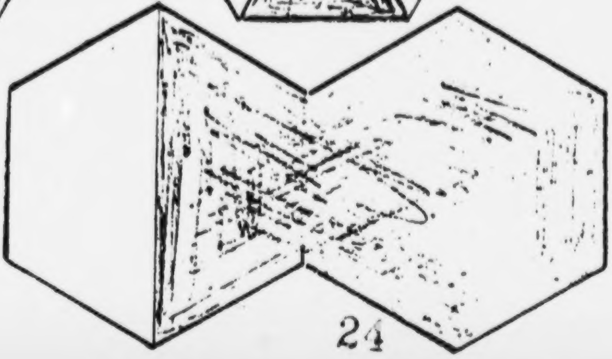
RED & GREEN

____ + ____

MATHEMATICIAN: ______________________________

MORE FRACTIONS

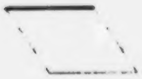
Cover the shaded part with Pattern Blocks. Write the fractions on an UNCOVERED part to show what part of the whole is UNCOVERED.

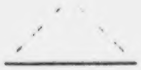











MATHEMATICIAN:________________________________

YELLOW = ONE = 1

RED = 1/2

BLUE  = 1/3

GREEN  = 1/6

Use Pattern Blocks to find the answers to these.

1/2 + 1/3 = $\frac{\square}{\square}$

1/2 − 1/3 = $\frac{\square}{\square}$

1/2 ÷ 1/6 = $\frac{\square}{\square}$

1/2 x 1/3 = $\frac{\square}{\square}$

1/3 x 1/2 = $\frac{\square}{\square}$

1/2 ÷ 3 = $\frac{\square}{\square}$

2/3 ÷ 2 = $\frac{\square}{\square}$

1 ÷ 3 = $\frac{\square}{\square}$

1 ÷ 2 = $\frac{\square}{\square}$

2/3 ÷ 1/6 = $\frac{\square}{\square}$

2/3 + 1/2 = $\square$

1 − 1/3 = $\frac{\square}{\square}$

MATHEMATICIAN:____

THE DARK GREEN (D) ROD = ONE

FRACTION	NUMERAL	ROD COLOR	ROD NAME
Example: One Half	1/2	Green	G
One Third			
One Sixth			
Two Thirds			
Two Sixths			
Three Sixths			
Four Sixths			
Five Sixths			
These are more than one			
Seven Sixths	7/6 = 1 1/6	Black	K
Eight Sixths			
Nine Sixths			
Three Halves			
Four Thirds			
Five Thirds			
Ten Sixths			

Mathematician:____

One Half

"I found a rod ONE HALF as long as each rod, or train of rods, given; and completed a sentence showing this. If I couldn't find one, I wrote No Rod = 1/2."

RODS	SENTENCE
Example: D G	G = 1/2 D
G	No rod = 1/2 G
K (black)	
N (brown)	
E (blue)	

MATHEMATICIAN:______________________________

ONE THIRD

"I found a rod ONE THIRD as long as each rod, or train of rods given, and completed a sentence showing this. If I coouldn't find one, I wrote No Rod - 1/3."

RODS	SENTENCE
R	No Rod = 1/3
W	
G	
Y	
D	
K	
N	
E	
O + W	
O + R	
O + G	
O + P	
O + Y	
O + D	
O + K	
O + N	
O + E	

MATHEMATICIAN-____

ONE FOURTH

"I found a rod ONE FOURTH as long as each rod, or train of rods given, and completed a sentence showing this. If I cound't find one, I wrote No Rod - 1/4."

RODS	SENTENCE
W	No Rod = 1/4 W
R	
G	
Y	
D	
K	
N	
E	
O + W	
O + R	
O + G	
O + P	
O + Y	
O + D	
O + K	
O + N	
O + E	

Mathematician:____

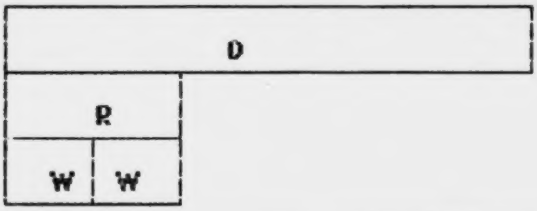
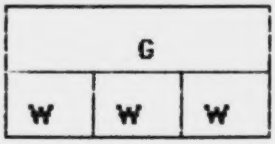
Parts of Ten ○ = **ONE**

RODS	SENTENCE
W	W = 1/10 ○
R	
G	
P	
Y	
D	
K	
N	
E	

MATHEMATICIAN:________________________________

"I used Cuisenaire Rods to find more than one name for these fractions when D is ONE."

D = ONE

RODS USED	FRACTION NAMES
	1/3 = 2/6
	
P	
Y	
D	
K	
N	
E	
U	

MATHEMATICIAN________________________________

JOINING FRACTIONS D = ONE

RODS JOINED	NUMBER SENTENCE
R + P	
R + Y	
R + D	
G + R	
G + G	
G + P	
G + Y	
P + G	

MATHEMATICIAN: ____________________

JOINING FRACTIONS D = ONE

RODS JOINED	NUMBER SENTENCE
P + P	
P + Y	
P + D	
Y + P	
Y + Y	
R + W + W	1/3 + 1/6 + 1/6 = 4/6 = 2/3
R + W + R	
R + W + G	

MATHEMATICIAN:____

JOINING FRACTIONS D = ONE

RODS JOINED	NUMBER SENTENCE
R + W + P	
R + G + G	
R + G + R	
G + P + R	
G + P + W	
G + P + R	
G + R + W	
P + Y + W	
G + Y + R	

MATHEMATICIAN:____________________________________

RODS	SENTENCE
O (Orange)	
O W	
O + R	
O + G	
O + P	
O + Y (YELLOW)	
O + D	
O + K	
O + N	
O + E	
20	

Mathematician:____

"Given the following rods as the ONE rod, I found what fractions all shorter rods are of this ONE rod."

The ONE Rod	Fractions of the ONE Rod
Example: G	W = 1/3 R = 2/3
P	W = R = G =
Y	W = R = G = P =
D	W = R = G = P = Y =

Mathematician:____

"Given the following rods as the ONE rod, I found what fractions all shorter rods are of this ONE rod."

The ONE Rod	Fractions of the ONE Rod
K	W = R = G = P = Y =
N	W = R = G = P = Y = D = K =

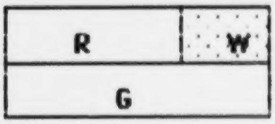
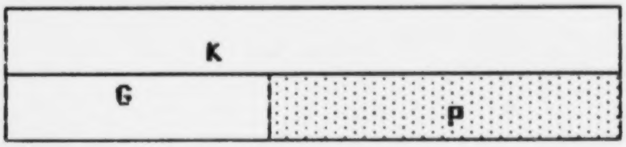
MATHEMATICIAN:____

The ONE Rod	Fractions of the ONE Rod
E	W = R = G = P = Y = D = K = N =
O	W = R = G = P = Y = D = K = N = E =

MATHEMATICIAN:____

Comparing Fractions

"I used the D rod as ONE and other rods as fractions. I compared these in different ways, FINDING THE DIFFERENCE between them."

RODS COMPARED	DIFFERENCE	NUMBER SENTENCE(S)
Example 1: 	W = 1/6	1/2 - 1/3 = 1/6 3/6 - 2/6 = 1/6
Example 2 	P = 2/3	7/6 - 1/2 = 2/3 7/6 - 3/6 = 4/6 7/6 - 3/6 = 2/3
C and W		
P and W		
P and R		
P and G		

MATHEMATICIAN:____

Comparing Fractions

"I used the D rod as ONE and other rods as fractions. I compared these in different ways, FINDING THE DIFFERENCE between them."

RODS COMPARED	DIFFERENCE	NUMBER SENTENCE(S)
Y and W		
Y and R		
Y and G		
Y and P		
D and W		
D and R		

MATHEMATICIAN:________________________________

Comparing Fractions

"I used the D rod as ONE and other rods as fractions. I compared these in different ways, FINDING THE DIFFERENCE between them."

RODS COMPARED	DIFFERENCE	NUMBER SENTENCE(S)
D and G		
D and P		
D and Y		
K and W		
K and R		
K and G		

MATHEMATICIAN:______________________________

Comparing Fractions

"I used the D rod as ONE and other rods as fractions. I compared these in different ways, FINDING THE DIFFERENCE between them."

RODS COMPARED	DIFFERENCE	NUMBER SENTENCE(S)
K and P		
K and Y		
K and D		
N and W		
N and R		
N and G		

MATHEMATICIAN:________________________________

Comparing Fractions

"I used the D rod as ONE and other rods as fractions. I compared these in different ways, FINDING THE DIFFERENCE between them."

RODS COMPARED	DIFFERENCE	NUMBER SENTENCE(S)
N and P		
N and Y		
N and K		

MATHEMATICIAN:____

"I used C rods with D = ONE to work these."

Parts Given	Rods Used	Joined? or Compared?	Rod Result	Numeral
Example: 1/6 + 5/6	W, Y	Joined	D	6/6 = 1
2/3 - 1/6				
5/6 - 1/2				
1/2 + 1/6				
1/6 + 2/3				
2/3 - 1/2				
5/6 - 2/3				
1 - 5/6				
1 - 2/3				
1 + 1/6				
5/6 - 1/6				
These are more than one Ex: 7/6 - 1/2	K, G	Compared	P	4/6 = 2/3
7/6 - 2/3				
7/6 - 1/3				
7/6 + 1/6				
4/3 + 1/6				
4/3 + 1/2				

MATHEMATICIAN: ______________________________

"I used C rods with D = ONE to work these."

Parts Given	Rods Used	Joined? or Compared?	Rod Result	Numeral
These are more than one				

MATHEMATICIAN:____

"I found how many fractions I could get from other fractions using Cuisenaire Rods. The D rod is ONE."

Rods Used	Fractions Used	Number Sentence
W from R	1/6 from 1/3	1/3 ÷ 1/6 = 2
P from Y	2/3 from 5/6	5/6 ÷ 2/3 = 1 1/4
W from G		
W from P		
W from Y		
R from G		
R from P		

MATHEMATICIAN:____

"I found how many fractions I could get from other fractions using Cuisenaire Rods. The D rod is ONE."

Rods Used	Fractions Used	Number Sentence
R from Y		
R from D		
G from P		
G from Y		
P from Y		
P from D		
Y from D		

MATHEMATICIAN:______________________________

"I used my folded paper to find these fraction answers."

Example!

1/8 + 2/8 = $\frac{3}{8}$

$\frac{\square}{\square}$ = 1/8 + 3/8

1/8 + 4/8 = $\frac{\square}{\square}$

1/8 + 5/8 = $\frac{\square}{\square}$

5/8 - 1/8 = $\frac{\square}{\square}$

7/8 - 2/8 = $\frac{\square}{\square}$

3/8 - 2/8 = $\frac{\square}{\square}$

$\frac{\square}{\square}$ = 1/2 + 3/8

5/8 + 1/4 = $\frac{\square}{\square}$

$\frac{\square}{\square}$ = 1/2 - 1/8

$\frac{\square}{\square}$ = 5/8 - 3/8

$\frac{\square}{\square}$ = 5/8 - 4/8

$\frac{\square}{\square}$ = 3/8 - 2/8

1/2 + 5/8 = $\frac{\square}{\square}$

1/4 + 5/8 = $\frac{\square}{\square}$

1/2 + 3/8 = $\frac{\square}{\square}$

1/4 + 3/8 = $\frac{\square}{\square}$

$\frac{\square}{\square}$ = 1/2 - 1/8

Mathematician: ____________________

Taking Away Fractions

"I used a SIX UNIFIX cube link as ONE, with other links as fractions. I took smaller fractions away from larger fractions."

= ONE

I Started With		I Broke Away		I Had Left		Number Sentence
No. of Cubes	Fraction	No. of Cubes	Fraction	No. of Cubes	Fraction	
Example: 4	4/6 or 2/3	1	1/6	3	3/6 or 1/2	2/3 - 1/6 = 1/2
2		1				
3		1				
3		2				
4		1				
4		2				
4		3				
5		1				
5		2				
5		3				
5		4				

Mathematician: ______________________ **Pg.** 2

Taking Away Fractions

"I used a SIX UNIFIX cube link as ONE, with other links as fractions. I took smaller fractions away from larger fractions."

I Started With		I Broke Away		I Had Left		Number Sentence
No. of Cubes	Fraction	No. of Cubes	Fraction	No. of Cubes	Fraction	
6		1				
6		2				
6		3				
6		4				
6		5				
6		6				
7		1				
7		2				
7		3				
7		4				
7		5				
7		6				

Mathematician:________________________________ **Pg.** 3

Taking Away Fractions

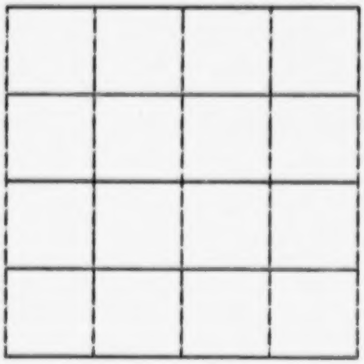
"I used a SIX UNIFIX cube link as ONE, with other links as fractions. I took smaller fractions away from larger fractions."

I Started With		I Broke Away		I Had Left		Number Sentence
No. of Cubes	Fraction	No. of Cubes	Fraction	No. of Cubes	Fraction	
8		1				
8		2				
8		3				
8		4				
8		5				
8		6				

Mathematician:____

"I colored in the fractions as shown and used "<" or ">" to show which fraction was larger."

1/2



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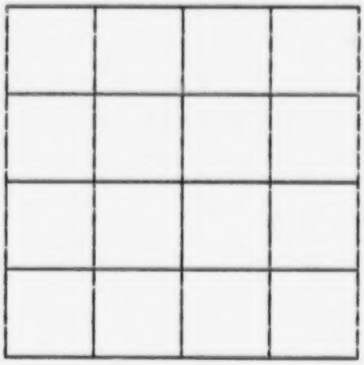

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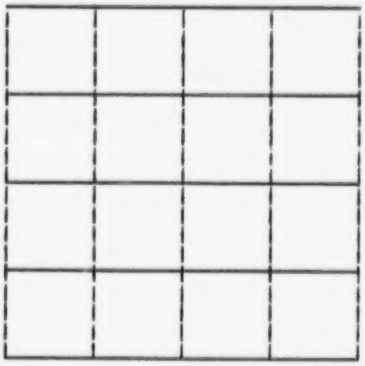

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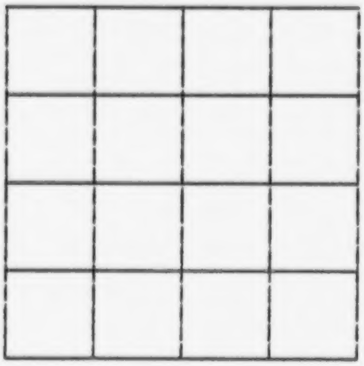

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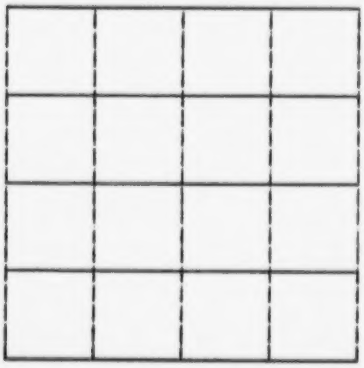

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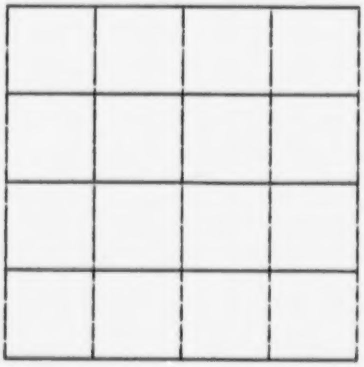
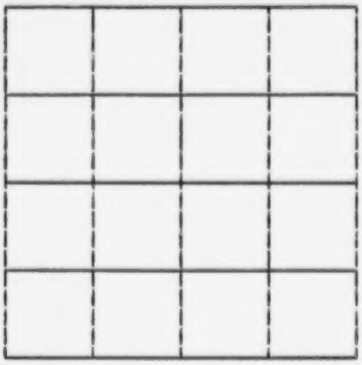


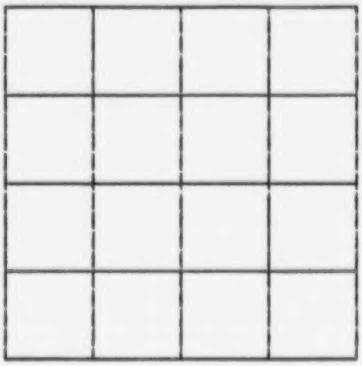
Mathematician:____

"I colored in the fractions as shown and used "<" or ">" to show which fraction was larger."

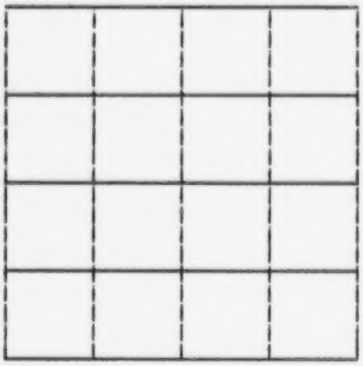
7/8



3/4



1/2



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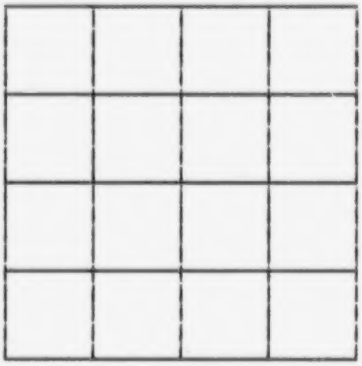

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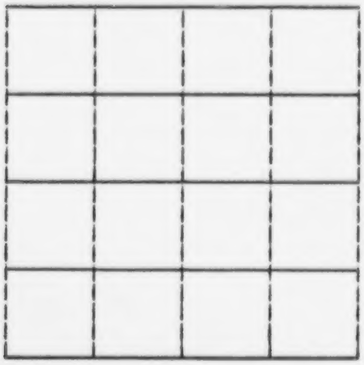
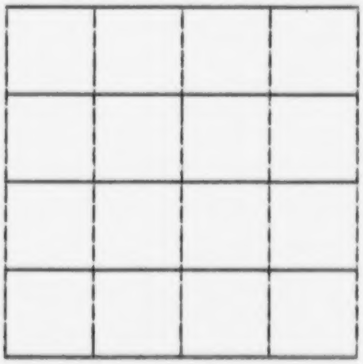
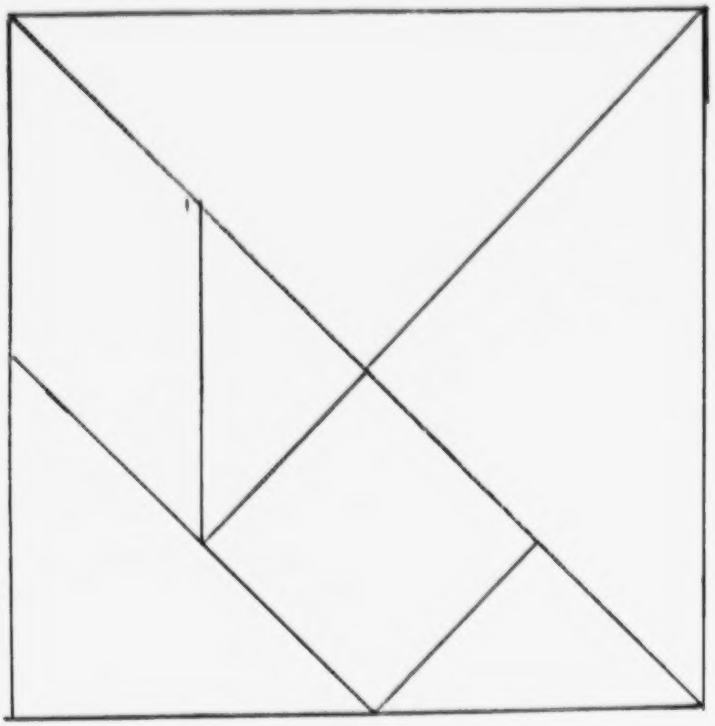


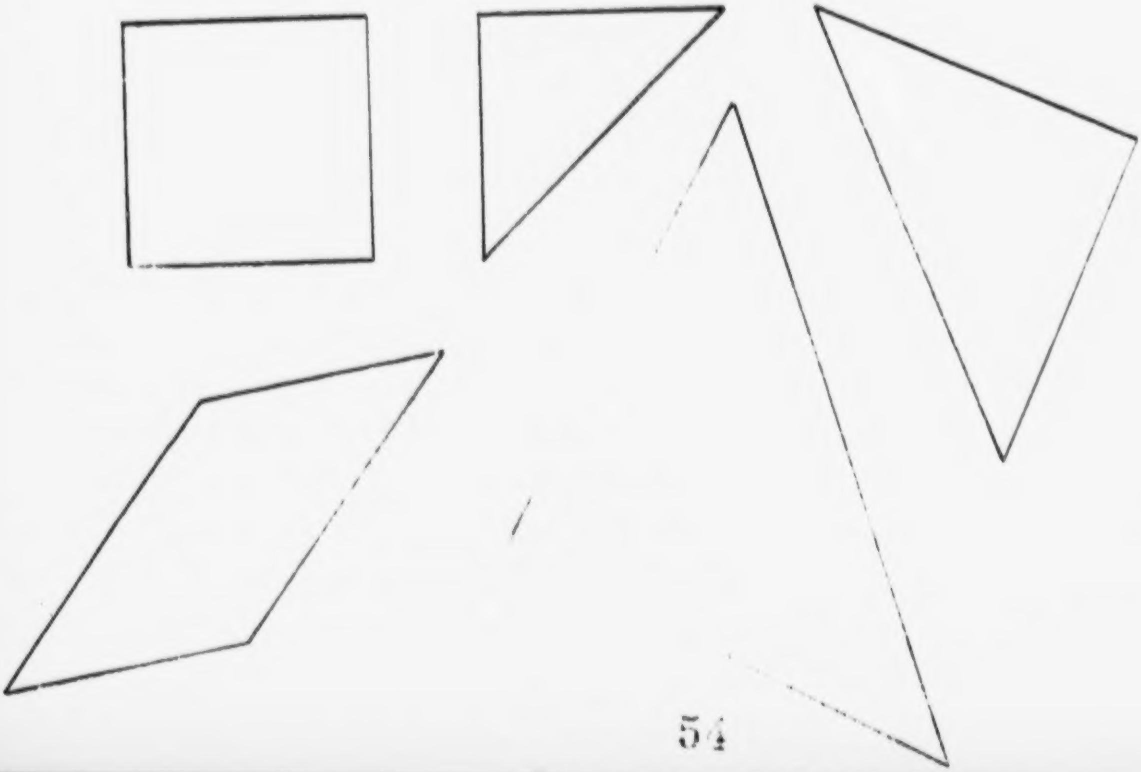
1/2



Mathematician:______________________________________

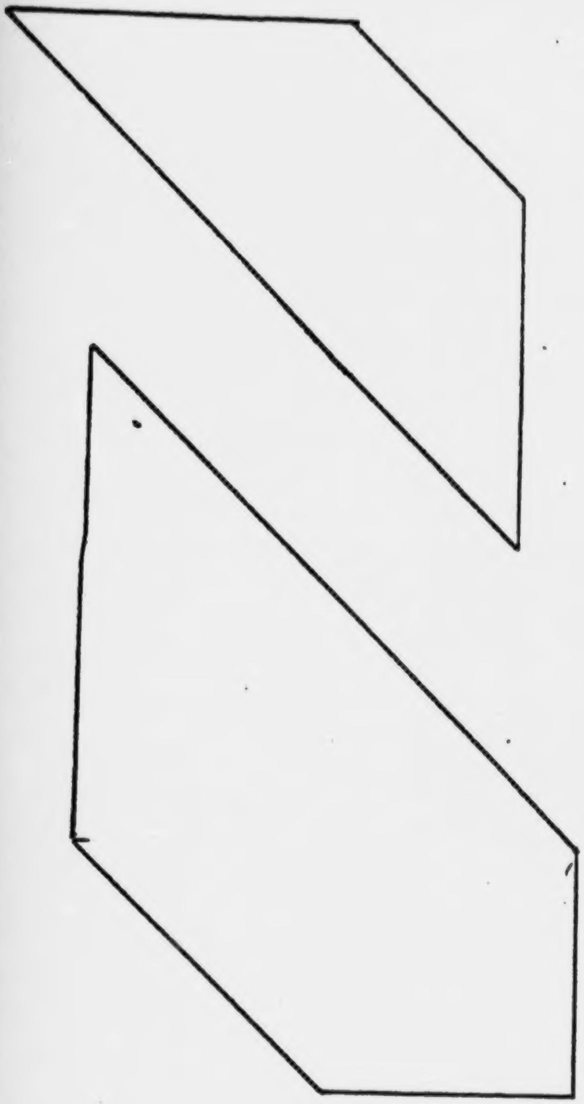
"Here is how the Tangrams make a square. The square is ONE.
I gave fraction names to these pieces and to the Tangram shapes given."

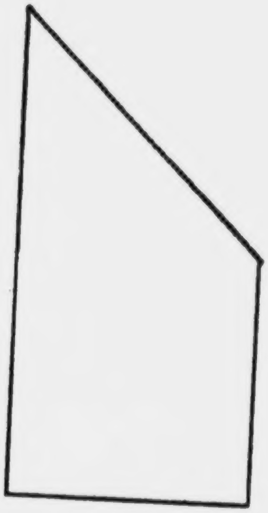


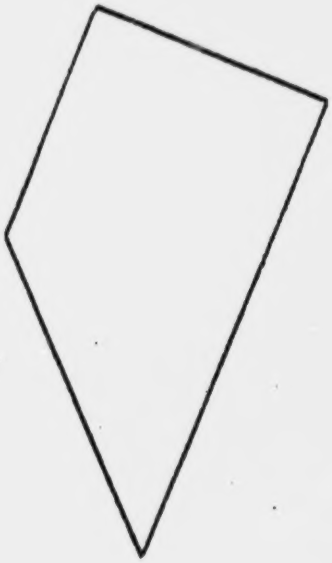


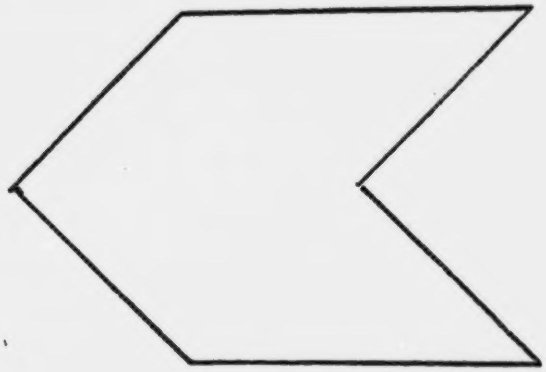
Mathematician:________________________________

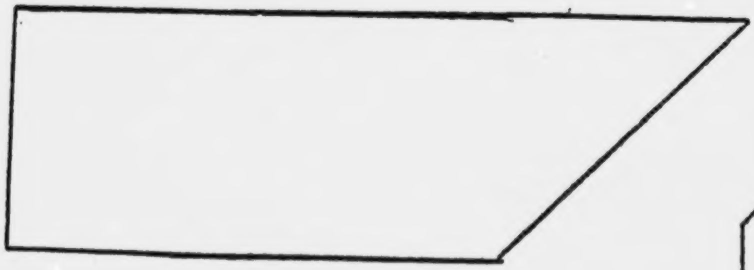
"If we had Tangram pieces that look like these, what part of ONE (fraction) would they be?"

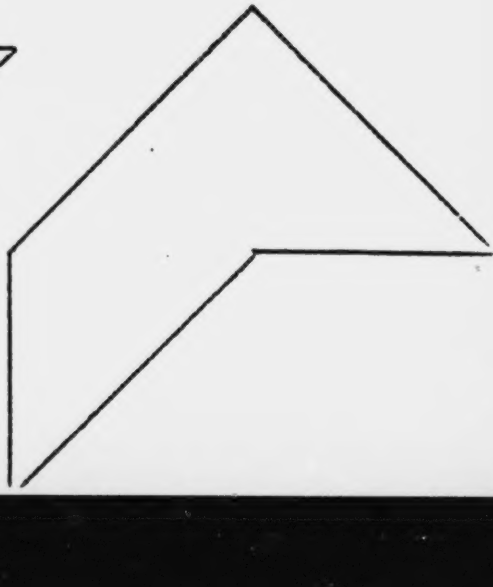






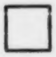
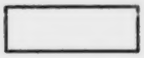
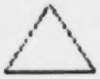
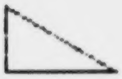
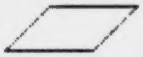
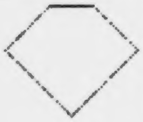
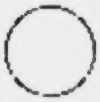
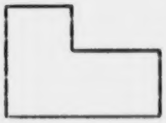






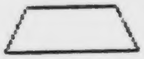
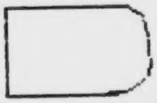
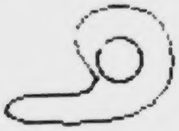
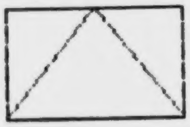
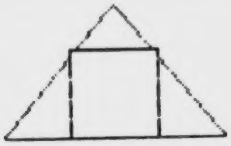
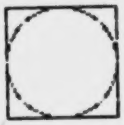
Mathematician:____

"I draw a shape different from the one given in ONE way and told how it was different as best I could."

Shape	My Shape	How it is different
Example: 		It doesn't have sides ALL the same length
		
		
		
		
		
		

Mathematician:________________________________

"I draw a shape different from the one given in ONE way and told how it was different as best I could."

Shape	My Shape	How it is different
		
		
		
		
		
		

MATHEMATICIAN:________________________________

"I compared the geoblocks and the larger of two blocks for different pairs of blocks. I circled the letter of the larger block and filled in the blanks."

BLOCKS COMPARED	BLOCK	is smaller than	BLOCK
A and B	__________	<	__________
A and C	__________	<	__________
A and D	__________	<	__________
A and E	__________	<	__________
B and C	__________	<	__________
B and D	__________	<	__________
B and E	__________	<	__________
C and D	__________	<	__________
C and E	__________	<	__________
D and E	__________	<	__________

"The largest block is __________"
"The smallest blocks is __________."

______ < ______ < ______ < ______ < ______

smallest largest

MATHEMATICIAN: ______________________________

My Hundreds Computer

Number	Hundreds	Tens	Ones	□	▬	●

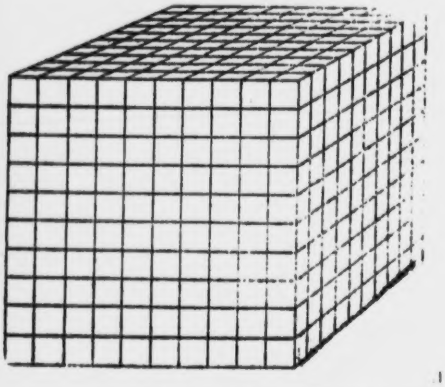
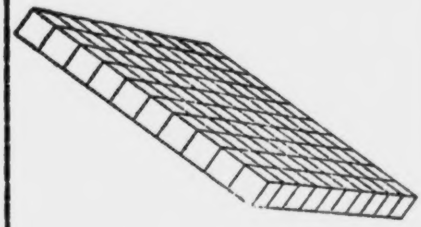
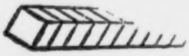
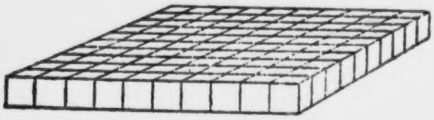
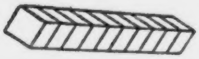
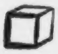
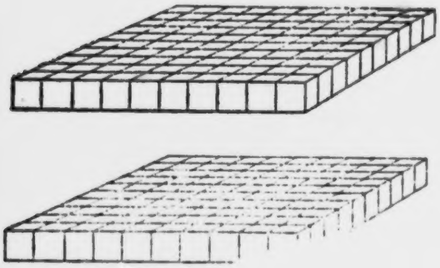
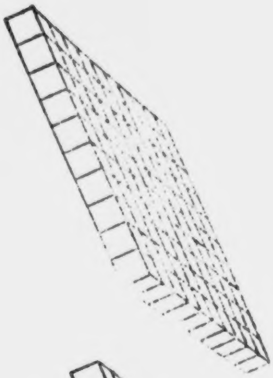
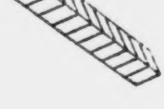
MATHEMATICIAN:____________________________________

"This is my record of numbers seen in base ten."

Cover Position	Number seen	Numeral
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

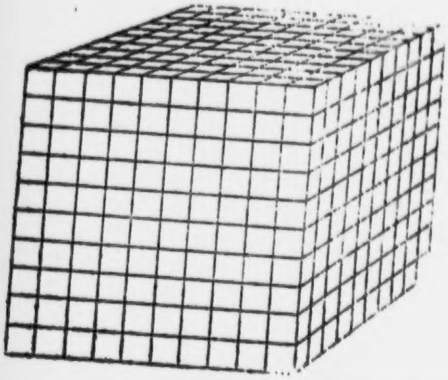
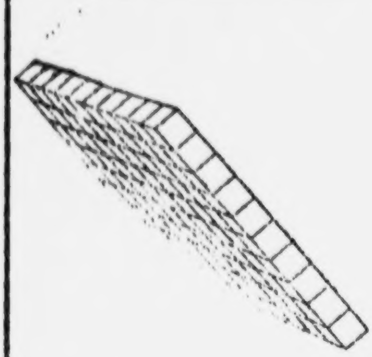
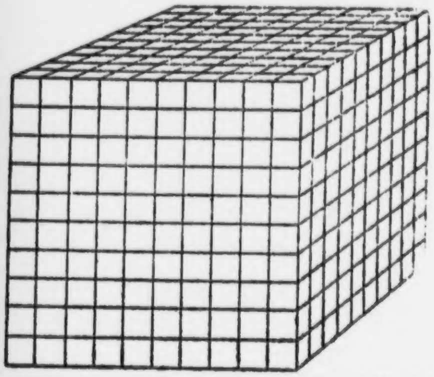
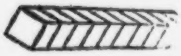
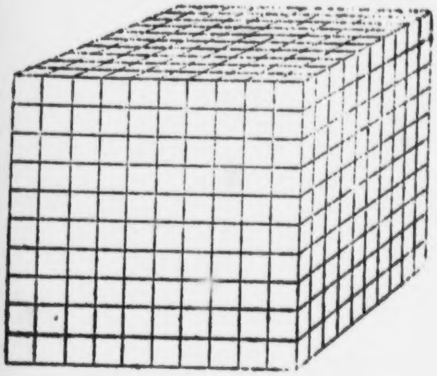
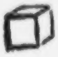
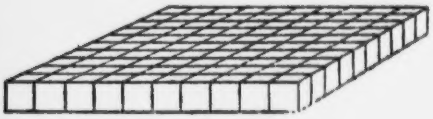
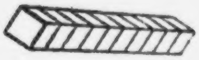
Mathematician: ______________________________

"Our group built numbers as shown."

Build	Using	How many of each
	 	________ ________
	 	________ ________
	  	________ ______ ______

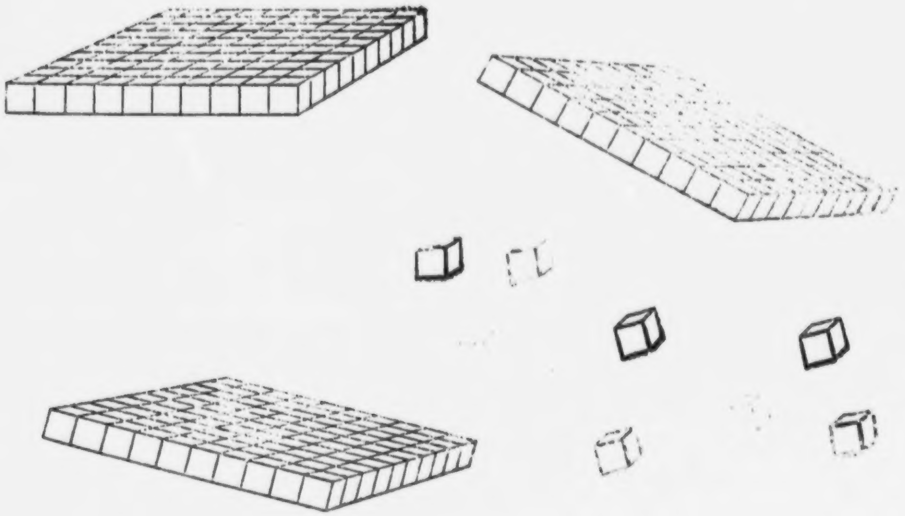
Mathematician:______________________________

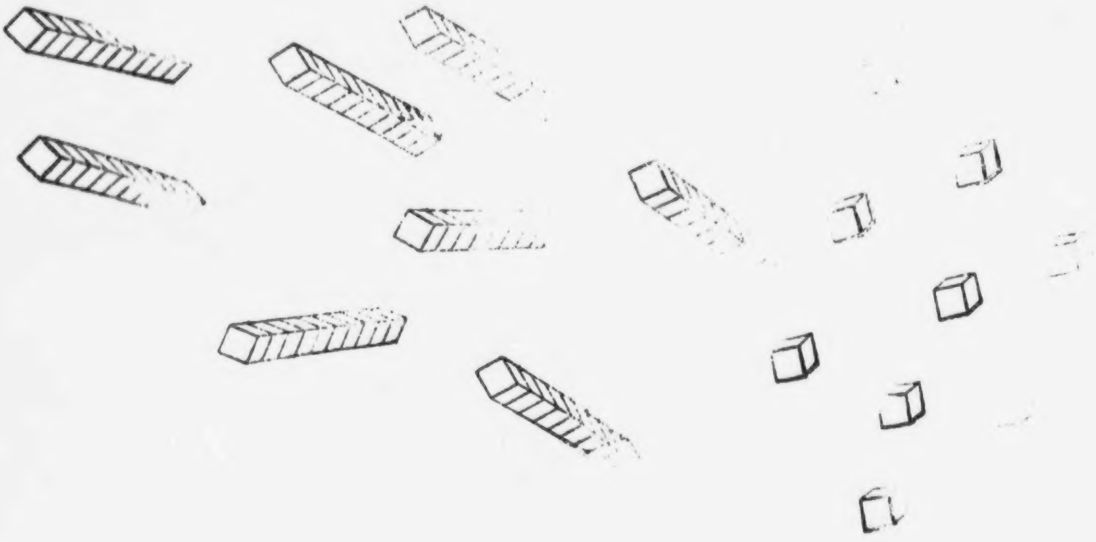
"Our group built numbers as shown."

Build	Using	How many of each?
		______
		______
	 (GUESS!)	______
		______

Mathematician:____

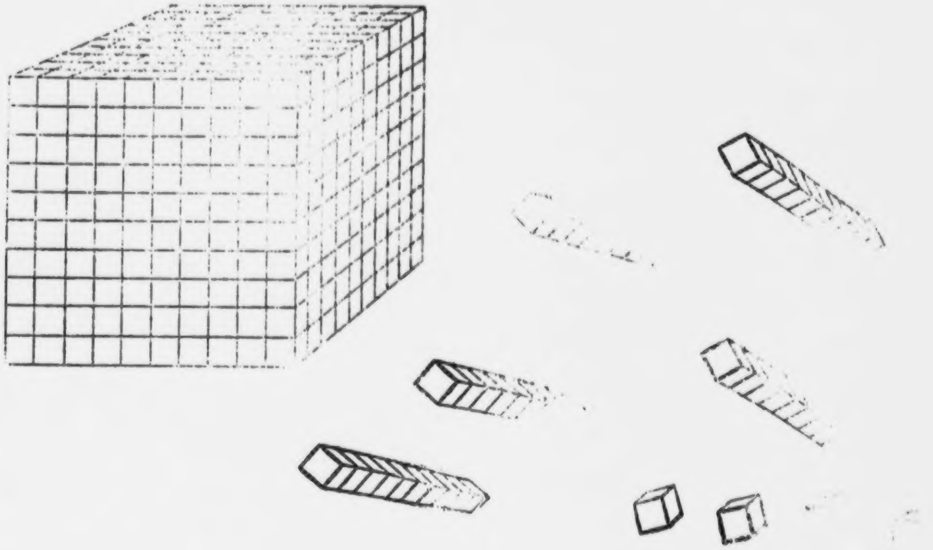
"I wrote the numeral for each base ten number."

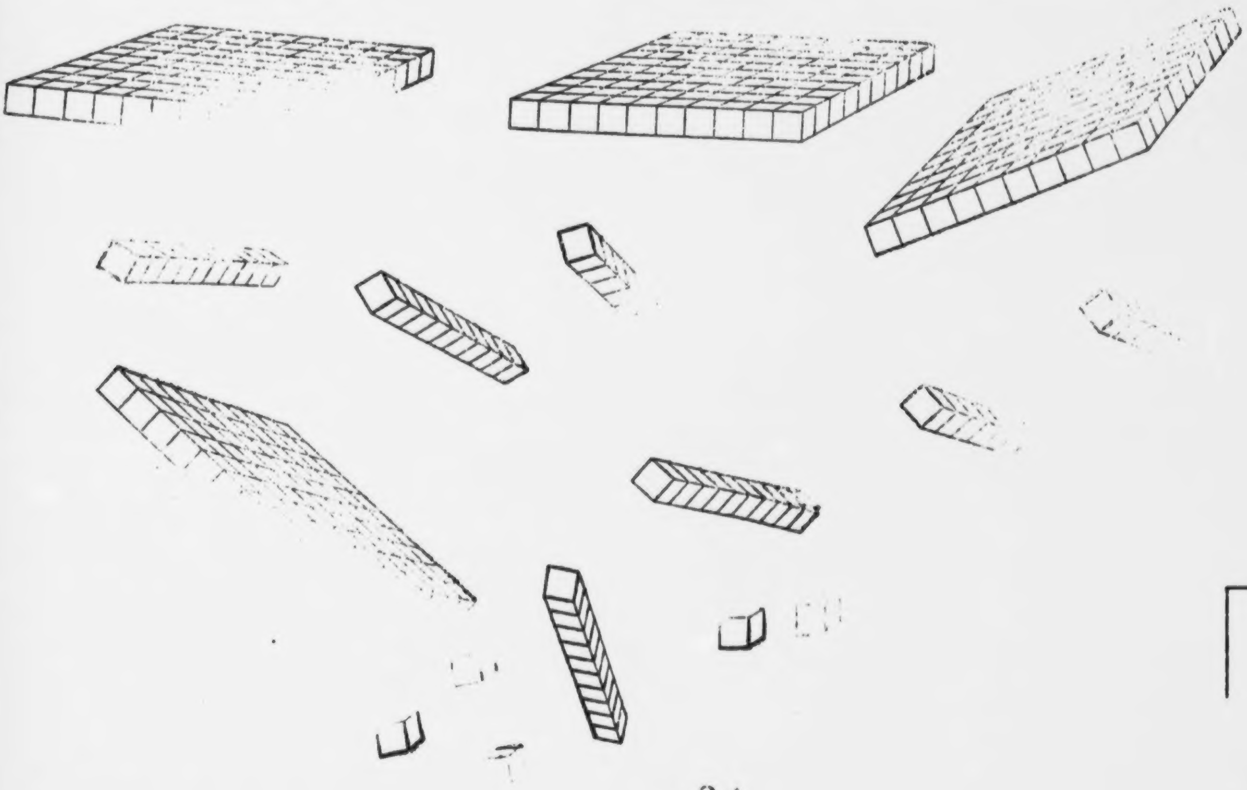




Mathematician:____

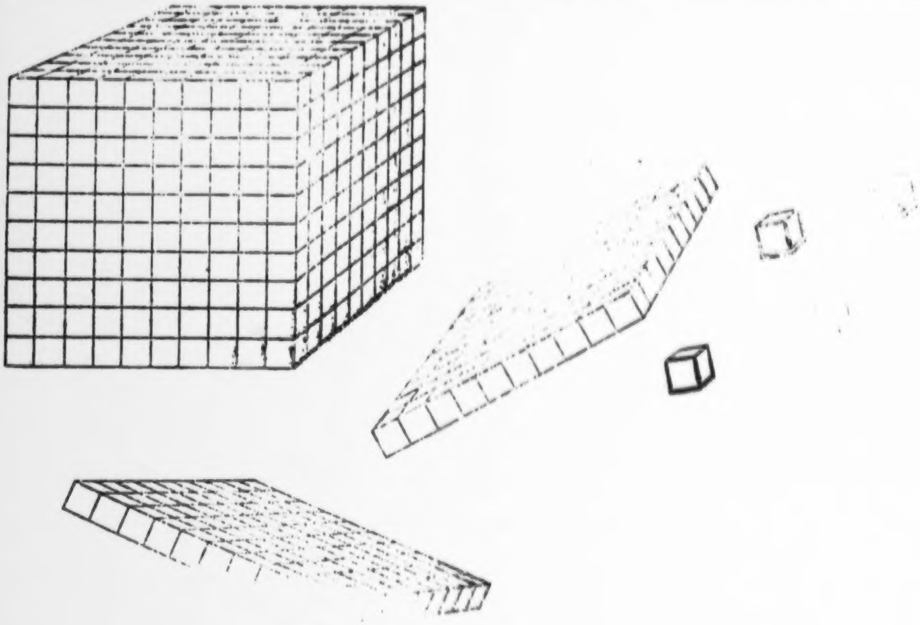
"I wrote the numeral for each base ten number."

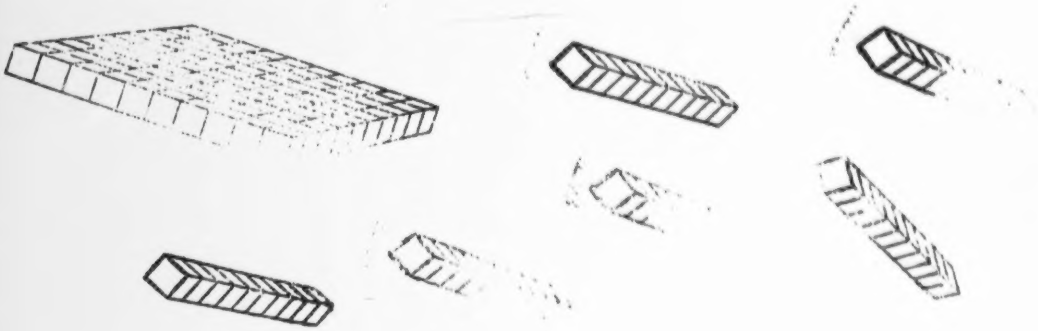




Mathematician:____________________________________

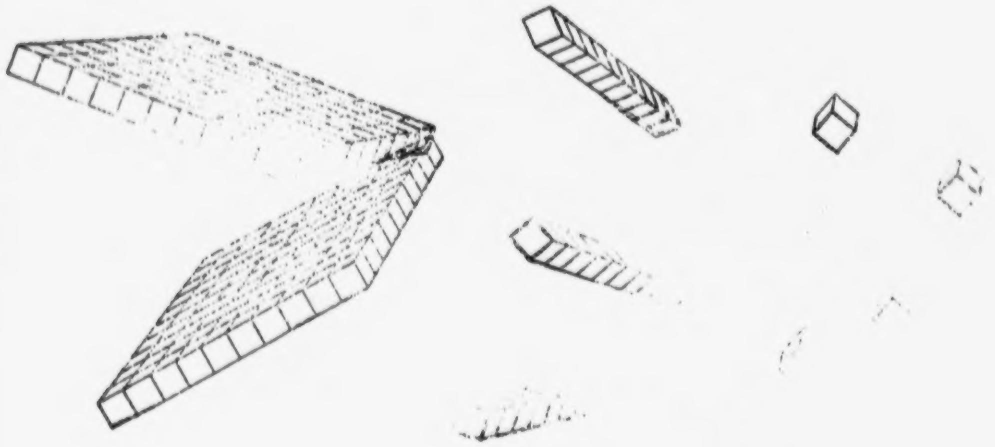
"I wrote the numeral for each base ten number."

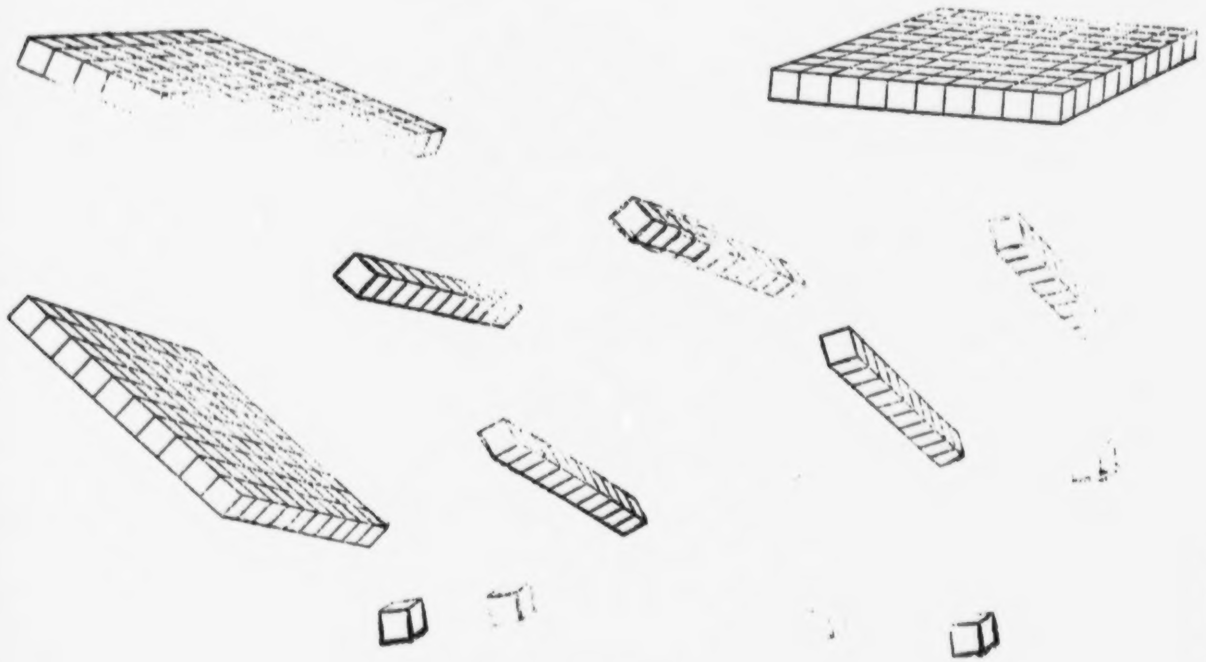




Mathematician:____

"I wrote the numeral for each base ten number."





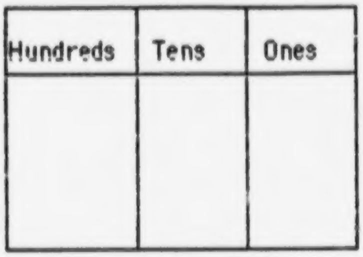
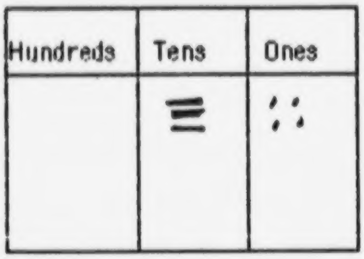
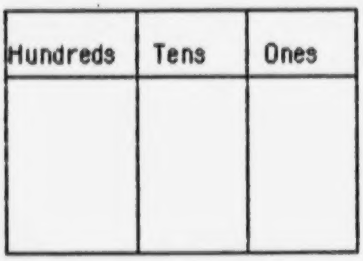
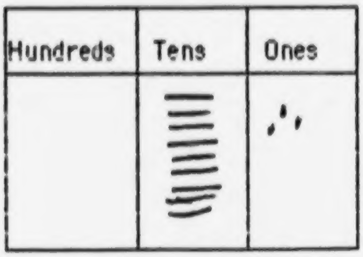
MATHEMATICIAN:____________________________________

"My pictures, numerals, and words for numbers I built with base ten blocks."

Words	Pictures			Numerals
	Hundreds	Tens	Ones	
SIXTY TWO				
	□	≡	••••	
				83
	□		•••	

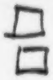
MATHEMATICIAN:________________________________

"My pictures, numerals, and words for numbers I built with base ten blocks."

Words	Pictures	Numerals
26	 Hundreds Tens Ones	
	 Hundreds Tens Ones	
	 Hundreds Tens Ones	50
	 Hundreds Tens Ones	

MATHEMATICIAN:______________________________

"My pictures, numerals, and words for numbers I built with base ten blocks."

<table>
<tr><th>Words</th><th>Pictures</th><th>Numerals</th></tr>
<tr><td>Seventy five</td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table></td><td></td></tr>
<tr><td></td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td>•</td></tr></table></td><td></td></tr>
<tr><td>One hundred Seven</td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table></td><td></td></tr>
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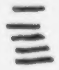
MATHEMATICIAN:____________________________________

"My pictures, numerals, and words for numbers I built with base ten blocks."

<table>
<tr><th>Words</th><th>Pictures</th><th>Numerals</th></tr>
<tr><td>eighty three</td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table></td><td></td></tr>
<tr><td></td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td> </td></tr></table></td><td></td></tr>
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<tr><td>ninety</td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table></td><td></td></tr>
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MATHEMATICIAN:______________________________

"My pictures, numerals, and words for numbers I built with base ten blocks."

<table>
<tr><th>Words</th><th>Pictures</th><th>Numerals</th></tr>
<tr><td></td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td>≡</td><td>• • • • •</td></tr></table></td><td></td></tr>
<tr><td></td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table></td><td>1 0 6</td></tr>
<tr><td>forty four</td><td><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table></td><td></td></tr>
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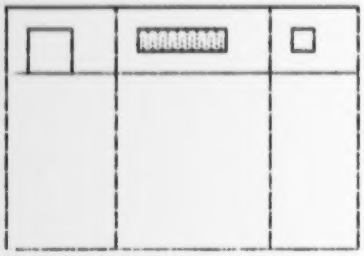
MATHEMATICIAN: ______________________________

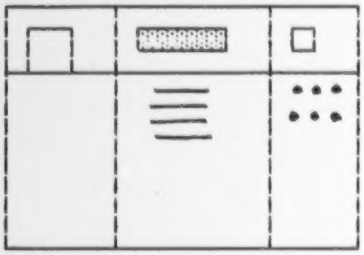
"My pictures, numerals, and words for numbers
I built with base ten blocks."

Pictures | Words | Numerals



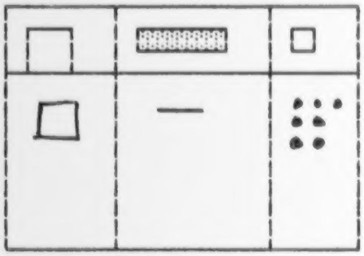
2 Hundreds 1 Tens 3 Ones

Hundreds	Tens	Ones



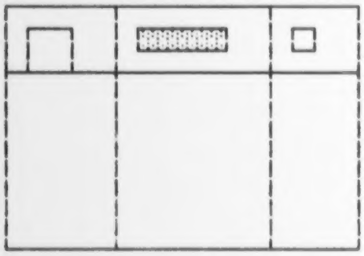
___ Hundreds ___ Tens ___ Ones

Hundreds	Tens	Ones



___ Hundreds ___ Tens ___ Ones

Hundreds	Tens	Ones



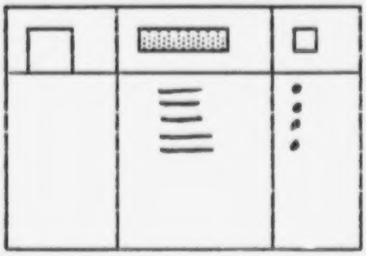
1 Hundreds 0 Tens 2 Ones

Hundreds	Tens	Ones

MATHEMATICIAN:___________________________

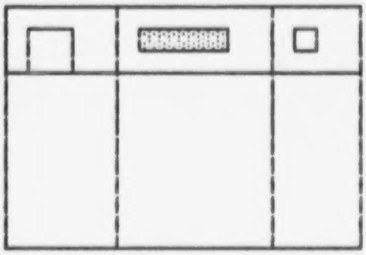
"My pictures, numerals, and words for numbers I built with base ten blocks."

Pictures | Words | Numerals



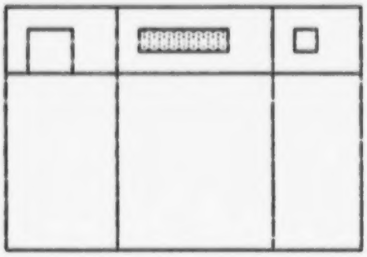
___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones



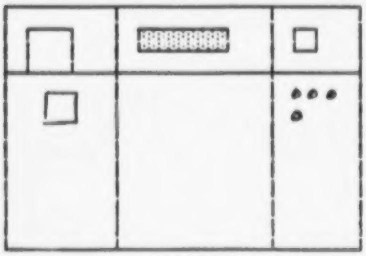
___Hundreds 4 Tens 2 Ones

Hundreds	Tens	Ones



___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones
1	0	6



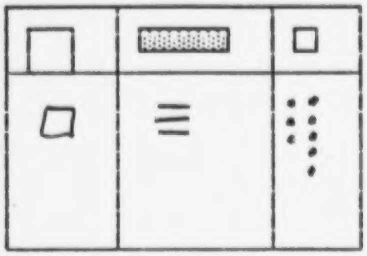
___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones

MATHEMATICIAN: ______________________________

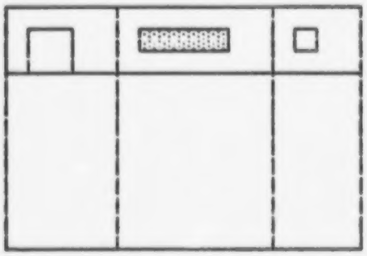
"My pictures, numerals, and words for numbers I built with base ten blocks."

Pictures | Words | Numerals



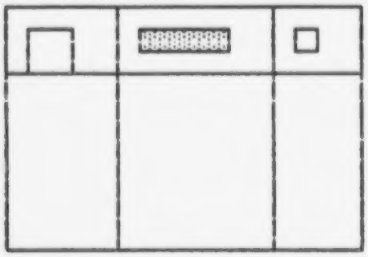
____Hundreds ____Tens ____Ones

Hundreds	Tens	Ones



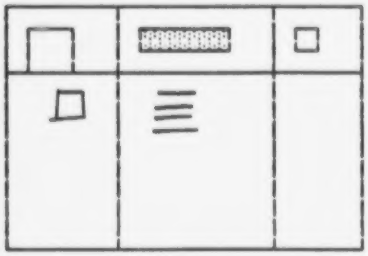
1 Hundreds 0 Tens 9 Ones

Hundreds	Tens	Ones



____Hundreds ____Tens ____Ones

Hundreds	Tens	Ones
1	2	0



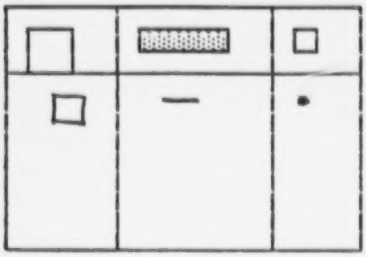
____Hundreds ____Tens ____Ones

Hundreds	Tens	Ones

MATHEMATICIAN:___________________________

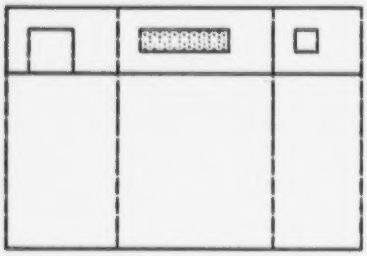
"My pictures, numerals, and words for numbers I built with base ten blocks."

Pictures | Words | Numerals



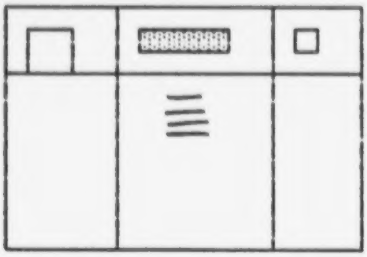
___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones



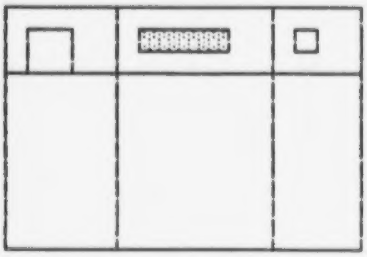
___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones
	6	2



___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones



___Hundreds 4 Tens ___Ones

Hundreds	Tens	Ones

MATHEMATICIAN: ______________________

"My pictures, numerals, and words for numbers
I built with base ten blocks."

Pictures | Words | Numerals

□	▭	▫

2 Hundreds 0 Tens 1 Ones

Hundreds	Tens	Ones

□	▭	▫

___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones
1	1	6

□	▭	▫
	3	0

___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones

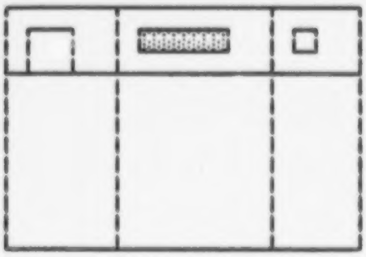
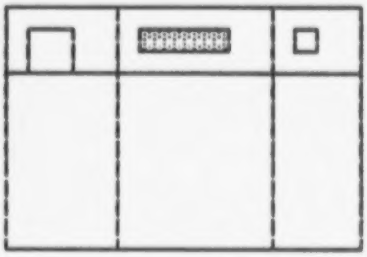
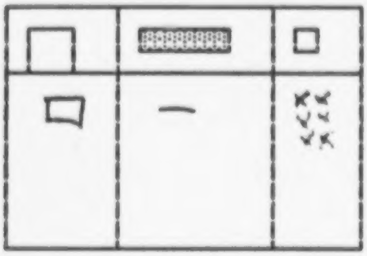
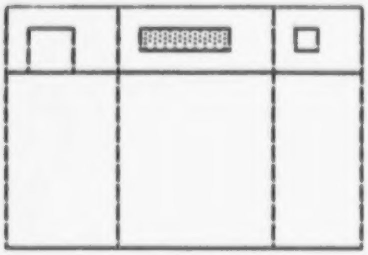
□	▭	▫

___Hundreds ___Tens ___Ones

Hundreds	Tens	Ones

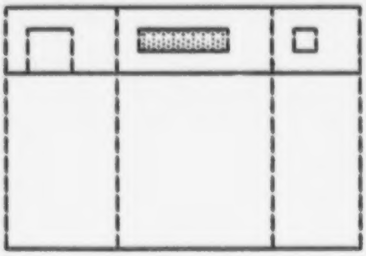
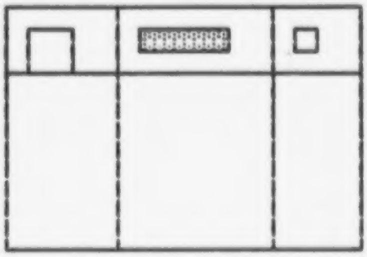
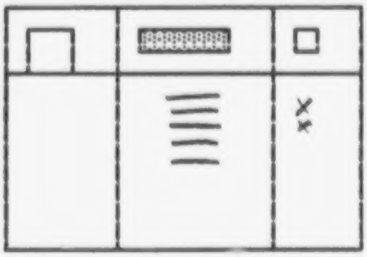
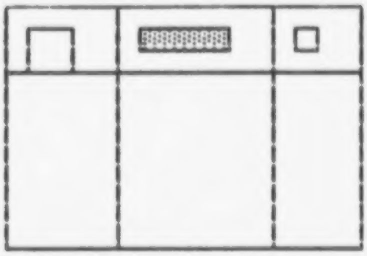
Mathematician:______________________________________

"My pictures, numerals and words for numbers I built with base ten blocks."

Pictures	Numerals	Words
		one hundred five
	3 9	
		
	4 4	

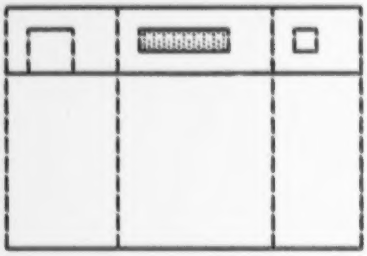
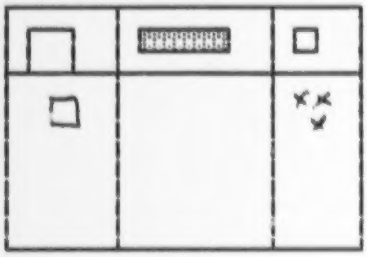
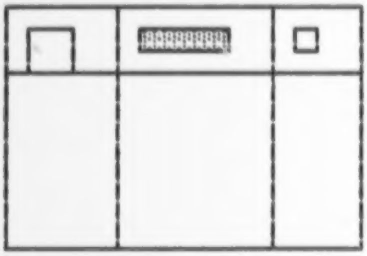
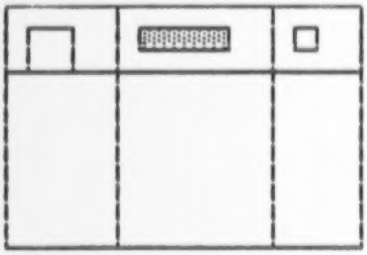
Mathematician: ______________________________

"My pictures, numerals and words for numbers I built with base ten blocks."

Pictures	Numerals	Words
	| | 3 | 7 |	
	| | | |	forty
	| | | |	
	| 1 | 0 | 3 |	

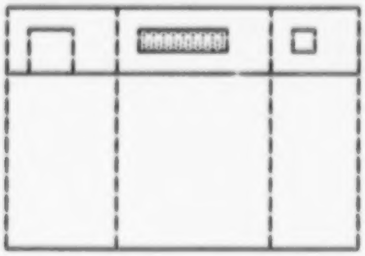
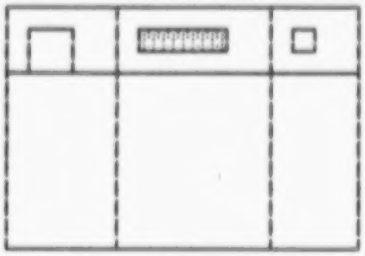
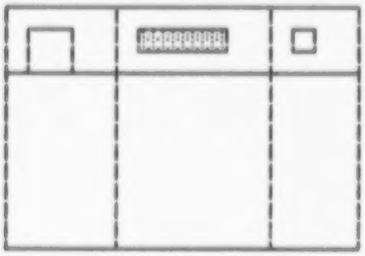
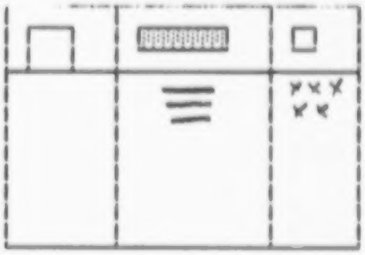
Mathematician:____

"My pictures, numerals and words for numbers
I built with base ten blocks."

Pictures	Numerals	Words
	8 3	
		
		ninety
	2 1 1	

Mathematician:____________________________________

"My pictures, numerals and words for numbers I built with base ten blocks."

Pictures	Numerals	Words
	2 | 1 | 0	
		Fifty five
	1 | 0 | 2	
		

Mathematician:________________________________

"I built the numbers with base ten blocks and wrote the numerals."

Number Words	Picture	Numeral
Starting Number twelve		

Mathematician: ______________________________

"I built the numbers with base ten blocks and wrote the numerals."

Number Words	Picture	Numeral
Starting Number nineteen		
twenty two		
forty four		
twenty nine		
twenty		
eighty		

Mathematician:______________________________

"I built the numbers with base ten blocks and wrote the numerals."

Number Words	Picture	Numeral
Starting Number twenty one		
eighty four		
Seventy nine		
one hundred thirty three		
Seventy five		
ninety		

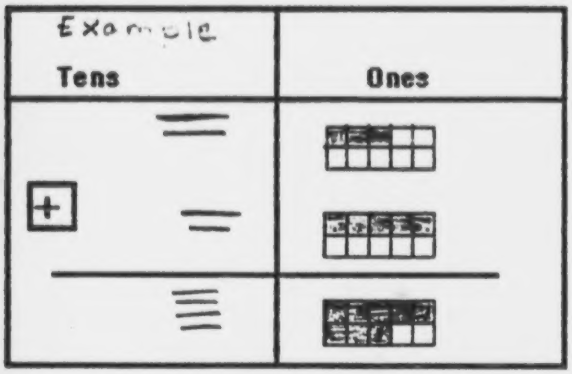
Mathematician: ____________________

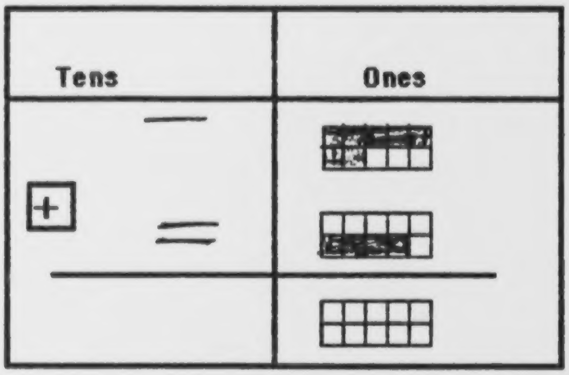
"I built the numbers with base ten blocks and wrote the numerals."

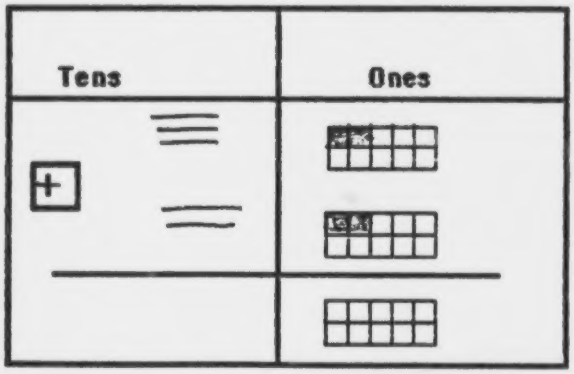
Number Words	Picture	Numeral
Starting Number Fourteen		
Twenty six		
Forty two		
Sixty eight		
ninety one		
twelve		

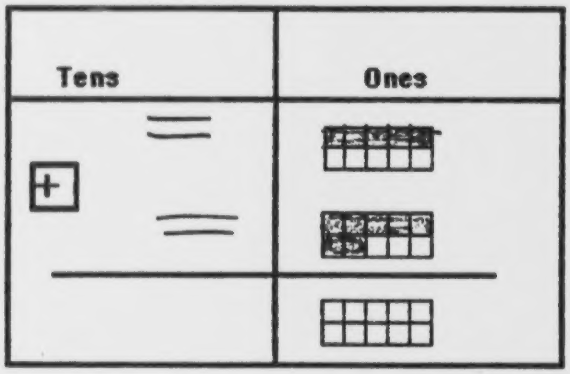
Mathematician:____

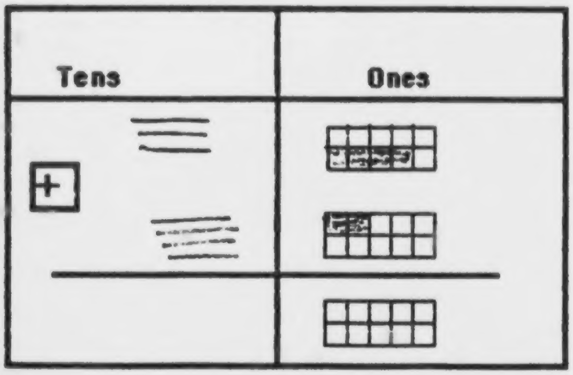
"I added the bottom number to the top number to find the answer

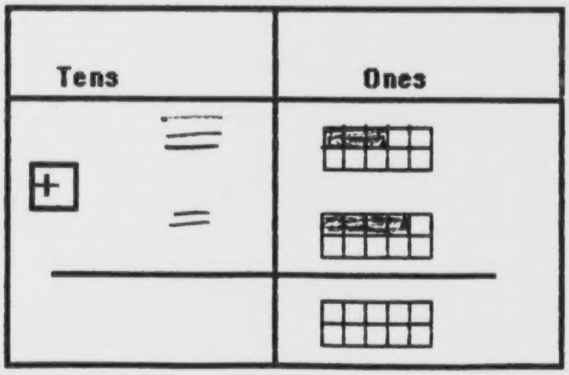

Example
Tens
Ones
+





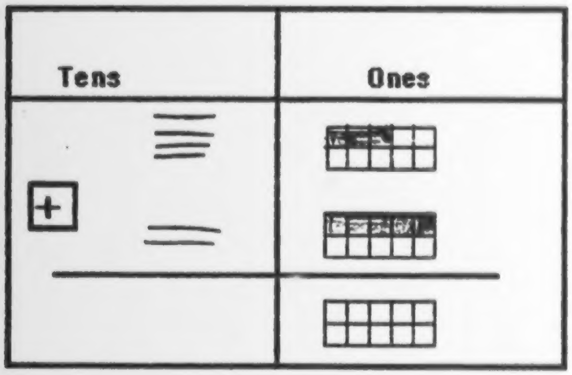


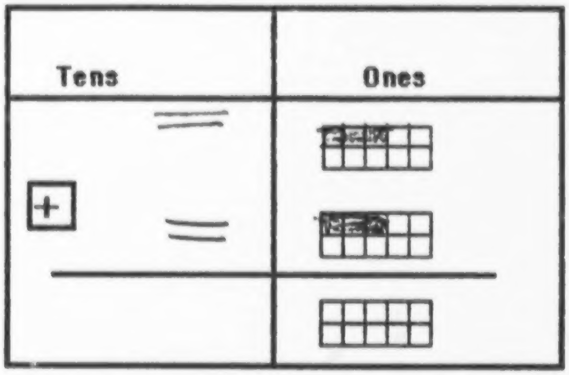


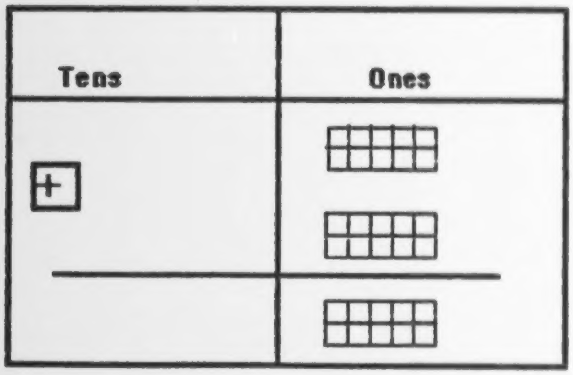


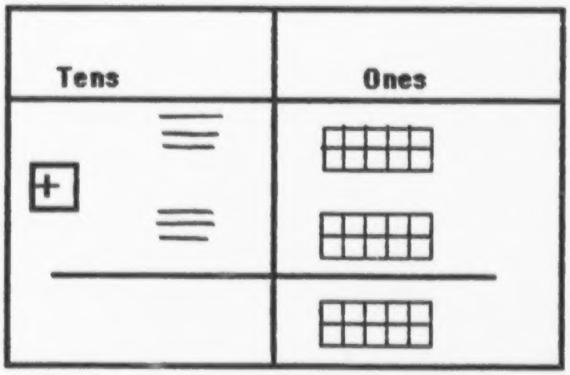
Mathematician:____________________________________

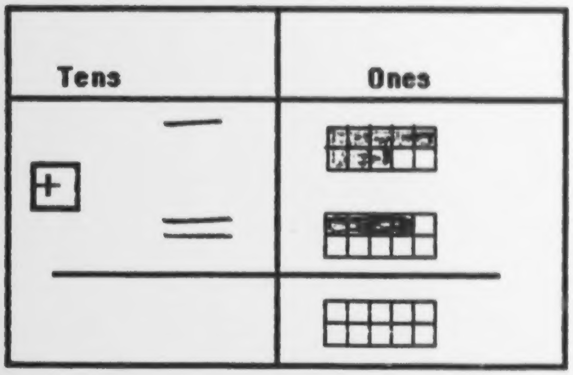
"I added the bottom number to the top number to find the answer

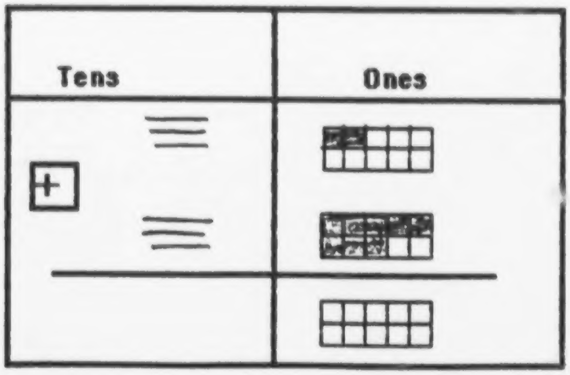






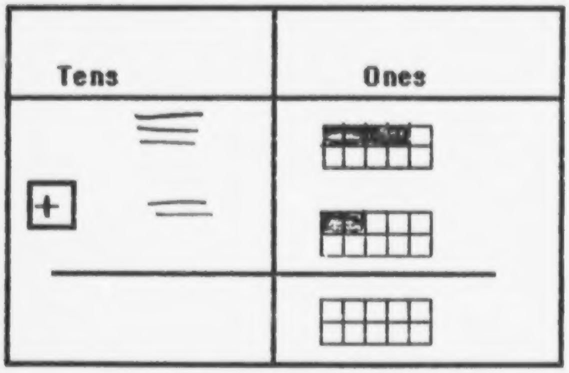


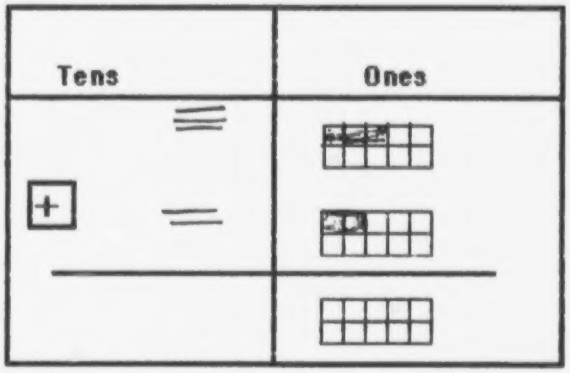


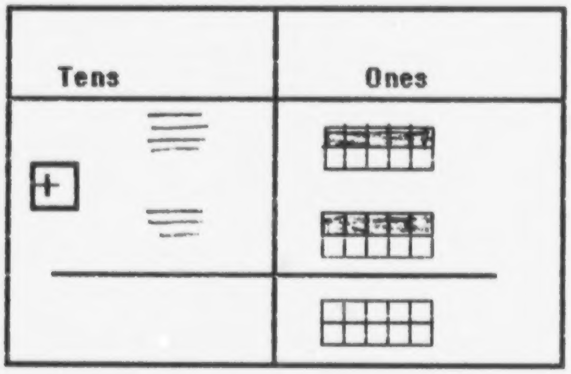


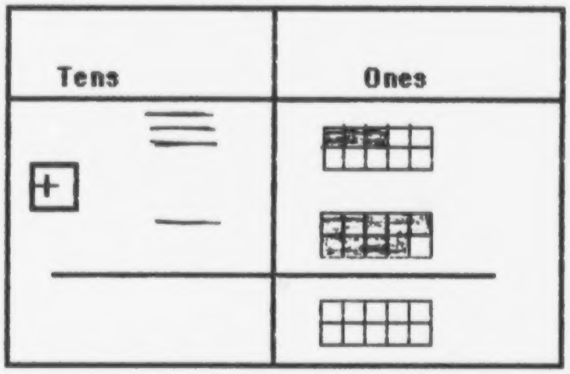
Mathematician:____

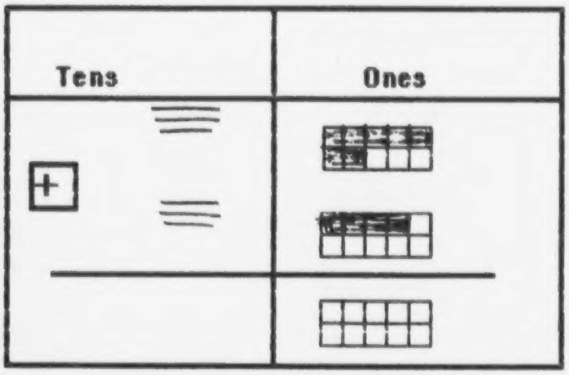
"I added the bottom number to the top number to find the answer

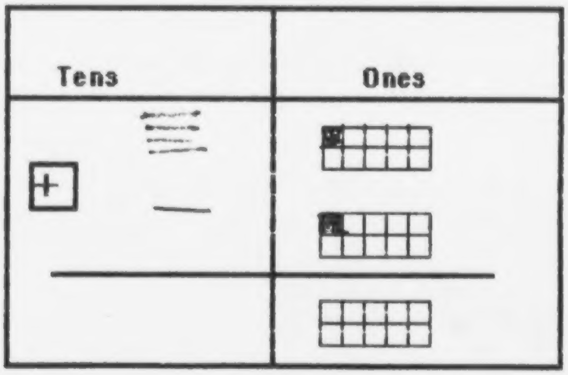






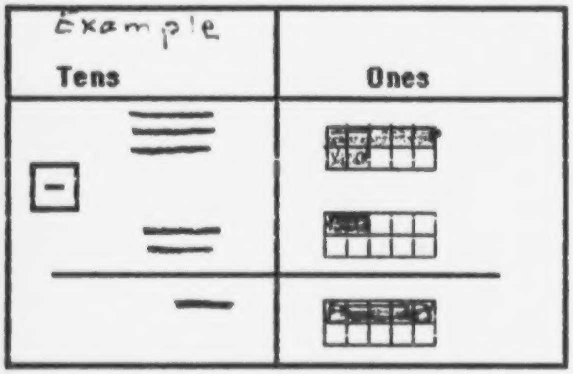


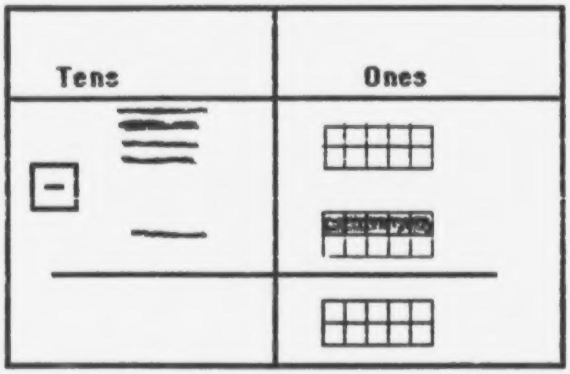


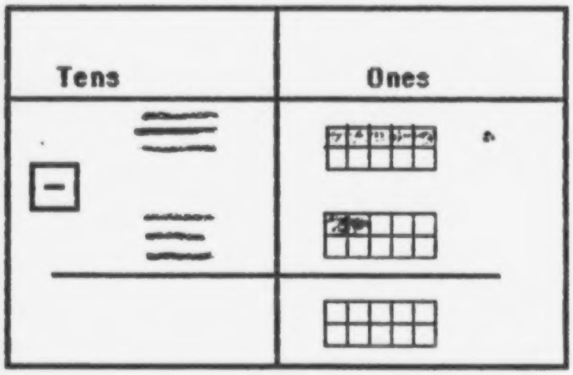


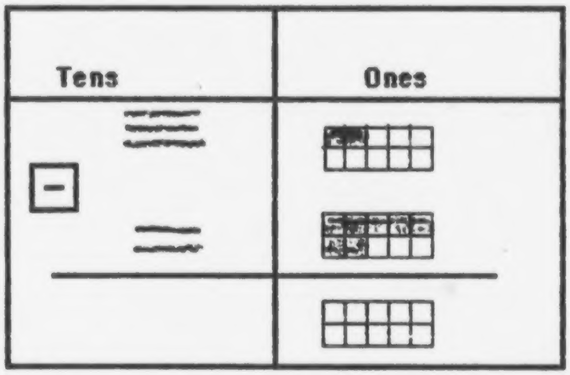
Mathematician:__________________________________

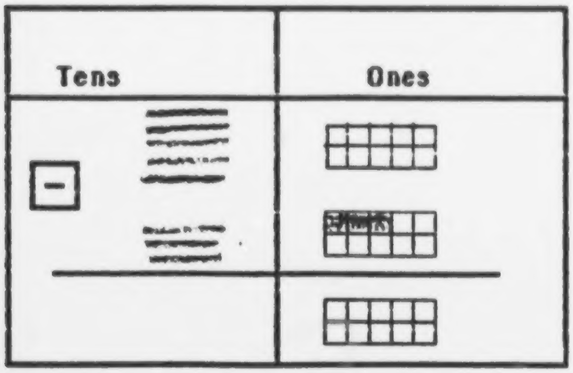
"I took the bottom number from the top number to find the answer."

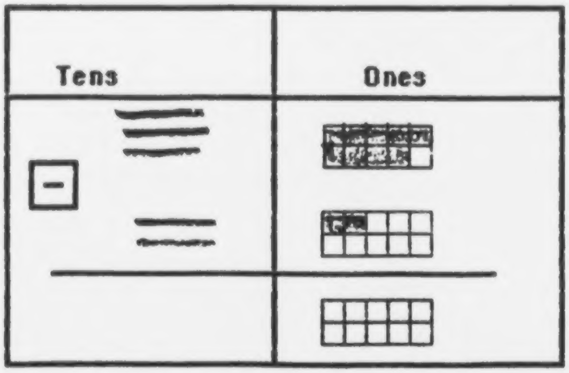

Example
Tens
Ones
−





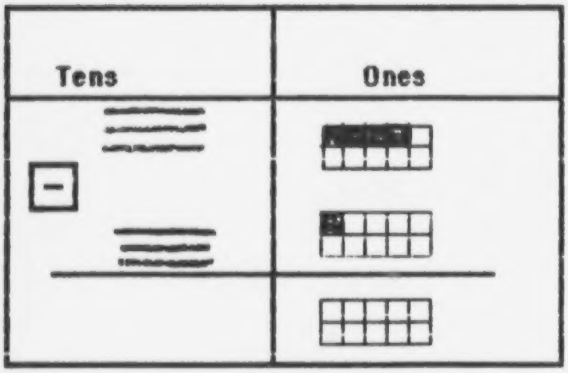


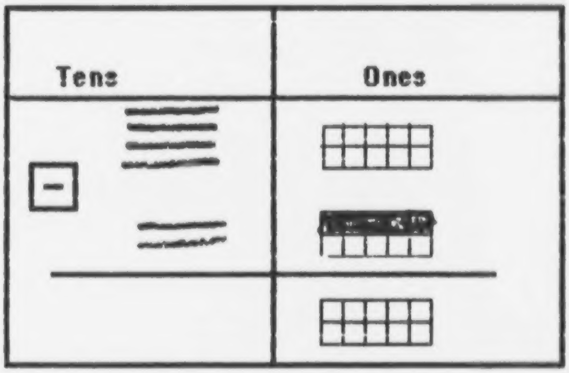


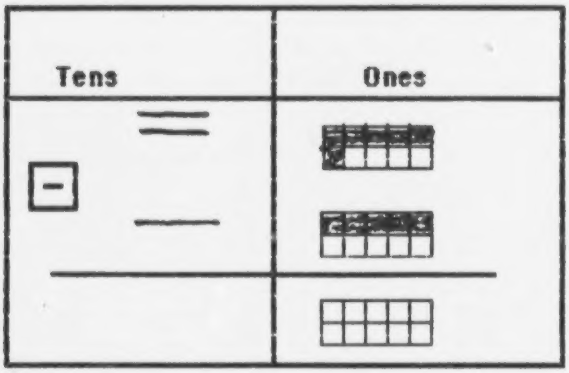


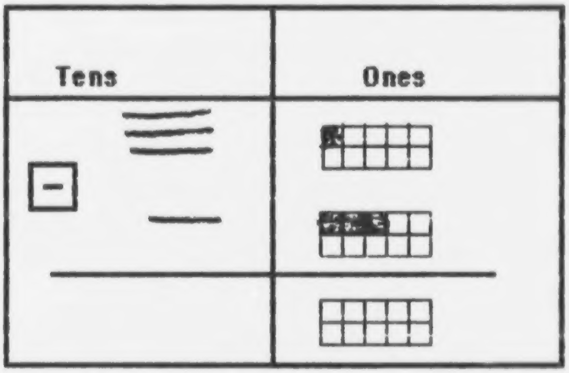
Mathematician:______________________________

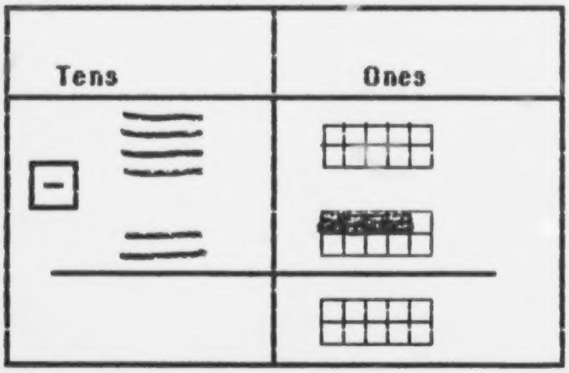
"I took the bottom number from the top number to find the answer."

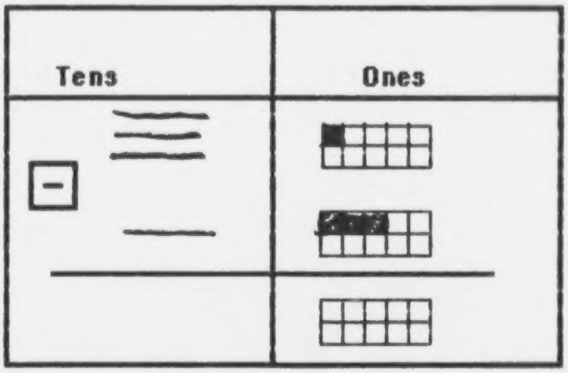






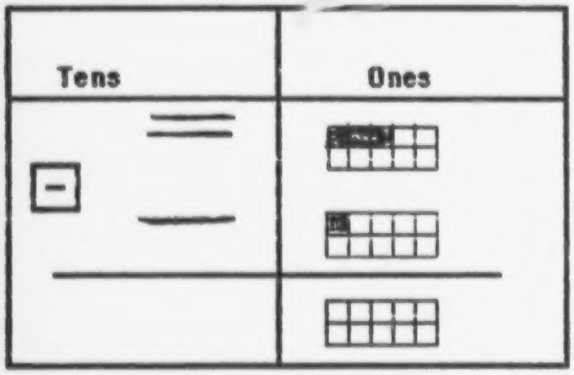


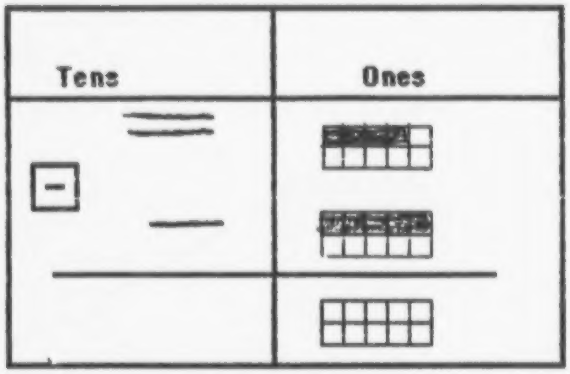


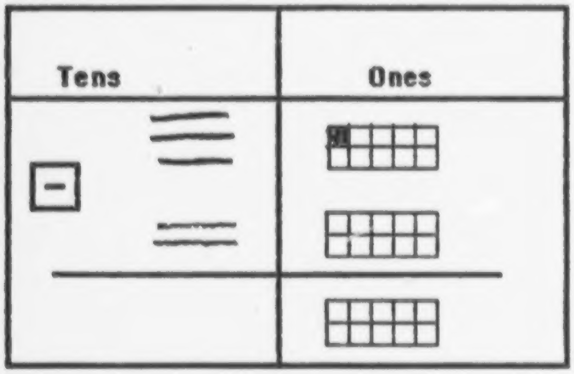


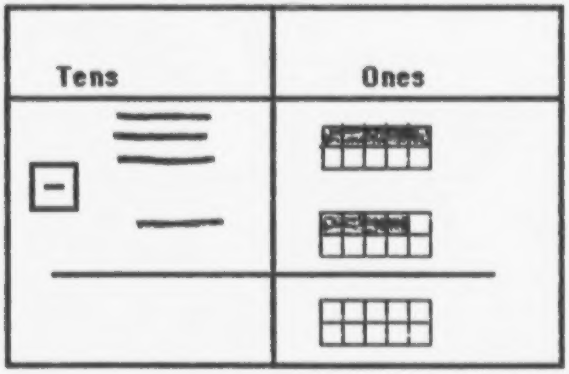
Mathematician:____________________________________

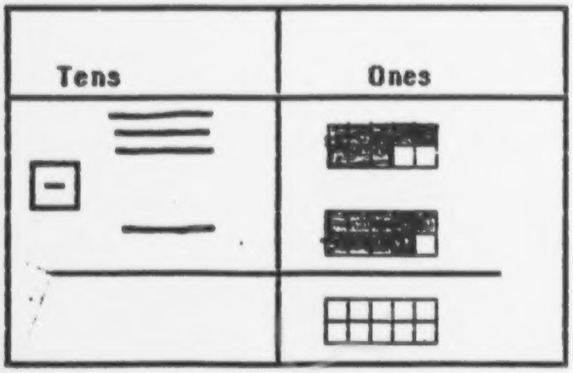
"I took the bottom number from the top number to find the answer."

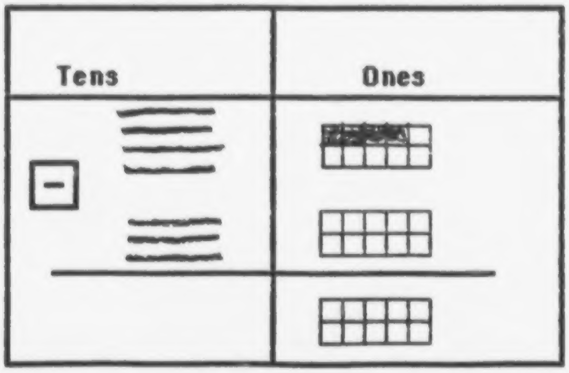












Mathematician:______________________________________

"I did these additions and checked the answer by subtraction."

Tens	Ones
2	4
+2	4

Tens	Ones
3	0
+2	5

Tens	Ones
2	9
+3	9

Tens	Ones
3	2
+2	8

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones
5	4
+3	8

Tens	Ones
2	9
+3	9

Tens	Ones
4	0
+2	5

Tens	Ones
1	9
+3	9

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Mathematician: ______________________________

"I did these additions and checked the answer by subtraction."

Tens	Ones
4	3
+ 4	7

Tens	Ones
5	2
+ 5	9

Tens	Ones
6	1
+ 3	8

Tens	Ones
4	7
+ 4	1

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones
3	8
+ 7	8

Tens	Ones
6	2
+ 4	7

Tens	Ones
5	5
+ 8	5

Tens	Ones
7	3
+ 8	7

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Mathematician:____

"I did these additions and checked the answer by subtraction."

Tens	Ones
3	4
+4	9

Tens	Ones
6	2
+5	7

Tens	Ones
2	9
+3	9

Tens	Ones
6	9
+3	9

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones
4	3
+4	4

Tens	Ones
5	8
+6	0

Tens	Ones
7	2
+8	1

Tens	Ones
4	5
+6	5

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Mathematician:____

"I did these additions and checked the answer by subtraction."

Tens	Ones
4	3
+3	8

Tens	Ones
4	2
+3	9

Tens	Ones
2	8
+8	1

Tens	Ones
6	4
+6	4

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones
7	5
+5	0

Tens	Ones
2	5
+7	5

Tens	Ones
3	9
+8	9

Tens	Ones
2	9
+4	9

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

MATHEMATICIAN:________________________________

"I used base ten blocks to add and to check my answer by subtracting."

	Additions		Checks		Additions		Checks	
Example:	Tens	Ones	Tens	Ones	Tens	Ones	Tens	Ones
	2 + 4	6 4	7 − 2 4	0 6 4	3 + 2	5 1		
	1 +2	6 3			1 +3	8 4		
	+ 2 3	5 5			+ 5 3	2 9		
	2 + 2	7 3			4 + 3	8 8		
	2 + 2	5 5			2 +1	9 8		

MATHEMATICIAN:________________________________

"I used base ten blocks to do the subractions and checked my answers by adding.."

	Subtractions		Checks		Subtractions		Checks	
Example:	Tens	Ones	Tens	Ones	Tens	Ones	Tens	Ones
	4	2	3	1	2	8		
	- 3	1	+1	1	-1	8		
			4	2				
	4	3			3	7		
	-2	5			-2	5		
	3	6			4	0		
	- 2	6			- 1	5		
	4	1			3	0		
	- 4	0			- 1	6		
	5	3			5	0		
	- 2	6			- 2	5		

Mathematician:______________________________

"I did these subtractions and checked the answer by addition."

Tens	Ones
4	5
− 3	2

Tens	Ones
4	0
− 3	8

Tens	Ones
5	0
− 2	0

Tens	Ones
5	0
− 3	9

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones
2	5
− 1	3

Tens	Ones
2	6
− 1	9

Tens	Ones
4	0
− 2	5

Tens	Ones
3	0
− 2	9

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Mathematician:____

"I did these subtractions and checked the answer by addition."

Tens	Ones
4	5
- 2	1

Tens	Ones
4	9
- 2	5

Tens	Ones
8	5
- 6	2

Tens	Ones
8	0
- 5	9

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones
7	5
- 3	9

Tens	Ones
5	0
- 2	9

Tens	Ones
6	9
- 5	0

Tens	Ones
7	5
- 4	9

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Mathematician: ______________________________

"I did these subtractions and checked the answer by addition."

	Tens	Ones
	3	3
−	2	2

	Tens	Ones
	4	8
−	2	5

	Tens	Ones
	4	2
−	1	9

	Tens	Ones
	4	7
−	3	8

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

	Tens	Ones
	5	2
−	3	0

	Tens	Ones
	6	5
−	3	8

	Tens	Ones
	8	0
−	4	5

	Tens	Ones
	3	4
−	2	9

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Mathematician:____

"I did these subtractions and checked the answer by addition."

Tens	Ones
4	1
−2	6

Tens	Ones
5	2
−4	1

Tens	Ones
6	8
−2	5

Tens	Ones
7	0
−3	5

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones
5	1
−2	0

Tens	Ones
6	3
−1	4

Tens	Ones
7	2
−1	9

Tens	Ones
4	4
−2	2

Check:

Tens	Ones

Tens	Ones

Tens	Ones

Tens	Ones

MATHEMATICIAN: ____

"I did the adding or subtracting and checked with the INVERSE OPERATION."

Example:

TENS	ONES
4	3
- 2	2
2	1

TENS	ONES
6	4
+ 1	8

TENS	ONES
6	4
- 1	8

CHECKS:

TENS	ONES
2	1
+ 2	2
4	3

TENS	ONES

TENS	ONES

TENS	ONES
5	0
+ 1	5

TENS	ONES
5	0
- 1	5

TENS	ONES
2	3
+ 3	2

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

MATHEMATICIAN: ____________________

"I did the adding or subtracting and checked with the INVERSE OPERATION."

TENS	ONES
3	0
+ 2	3

TENS	ONES
3	0
− 2	3

TENS	ONES
4	4
+ 3	7

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

TENS	ONES
4	4
− 3	7

TENS	ONES
2	9
+ 3	9

TENS	ONES
1	8
+ 1	8

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

MATHEMATICIAN: ____________________________________

"I did the adding or subtracting and checked with the INVERSE OPERATION."

TENS	ONES
6	0
− 4	4

TENS	ONES
2	9
+ 3	9

TENS	ONES
1	9
+ 2	4

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

TENS	ONES
4	0
− 1	9

TENS	ONES
2	5
− 1	9

TENS	ONES
2	6
+ 1	9

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

MATHEMATICIAN: ____________________

"I did the adding or subtracting and checked with the INVERSE OPERATION."

TENS	ONES
6	1
− 2	2

TENS	ONES
4	0
+ 1	4

TENS	ONES
4	0
− 1	4

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

TENS	ONES
3	6
+ 2	9

TENS	ONES
3	6
− 2	9

TENS	ONES
5	0
− 3	9

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

MATHEMATICIAN: ______________________________

"I did the adding or subtracting and checked with the INVERSE OPERATION."

TENS	ONES
3	7
+ 4	7

TENS	ONES
4	7
- 3	7

TENS	ONES
2	1
— 1	6

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

TENS	ONES
3	3
+ 1	8

TENS	ONES
3	3
- 1	8

TENS	ONES
6	1
+ 2	2

CHECKS:

TENS	ONES

TENS	ONES

TENS	ONES

Matematician:________________________________

"I did these additions and checked the answer by subtraction."

Hundreds	Tens	Ones
2	3	4
+ 2	9	9

Hundreds	Tens	Ones
1	0	6
+ 3	4	7

Hundreds	Tens	Ones
1	8	9
+ 2	1	9

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones
1	6	7
+ 2	3	4

Hundreds	Tens	Ones
1	2	3
+ 3	2	1

Hundreds	Tens	Ones
5	0	0
+ 3	9	9

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Matematician: ______________________________

"I did these additions and checked the answer by subtraction."

Hundreds	Tens	Ones
2	1	1
+ 2	8	9

Hundreds	Tens	Ones
1	0	4
+ 3	1	6

Hundreds	Tens	Ones
4	3	2
+ 1	8	8

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones
2	0	9
+ 1	8	9

Hundreds	Tens	Ones
3	0	2
+ 5	1	7

Hundreds	Tens	Ones
2	1	3
+ 2	2	9

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Matematician:______________________________

"I did these additions and checked the answer by subtraction."

Hundreds	Tens	Ones
1	8	8
+ 2	4	4

Hundreds	Tens	Ones
1	0	7
+ 2	0	7

Hundreds	Tens	Ones
1	9	9
+ 2	1	1

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones
3	2	1
+ 2	8	9

Hundreds	Tens	Ones
1	2	4
+ 1	0	9

Hundreds	Tens	Ones
1	2	3
+ 4	5	6

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Matematician: ______________________________

"I did these additions and checked the answer by subtraction."

Hundreds	Tens	Ones
1	3	4
+ 1	0	5

Hundreds	Tens	Ones
1	0	6
+ 2	1	7

Hundreds	Tens	Ones
2	1	1
+ 1	9	9

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones
2	3	3
+ 1	8	8

Hundreds	Tens	Ones
2	0	9
+ 1	0	9

Hundreds	Tens	Ones
1	3	4
+ 2	5	6

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Mathematician:____

"I did these subtractions and checked the answer by addition."

Hundreds	Tens	Ones
1	0	0
−	7	3

Hundreds	Tens	Ones
2	8	5
− 1	3	3

Hundreds	Tens	Ones
3	0	2
− 1	4	5

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones
3	2	0
− 1	2	9

Hundreds	Tens	Ones
2	2	5
− 1	8	9

Hundreds	Tens	Ones
3	5	0
− 1	9	9

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Mathematician: ______________________ ________________

"I did these subtractions and checked the answer by addition."

Hundreds	Tens	Ones
1	1	1
−	8	8

Hundreds	Tens	Ones
2	2	2
− 1	1	1

Hundreds	Tens	Ones
5	4	0
− 4	3	5

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones
2	0	3
− 1	3	4

Hundreds	Tens	Ones
1	0	0
−	7	5

Hundreds	Tens	Ones
2	0	0
− 1	3	9

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Mathematician:____

"I did these subtractions and checked the answer by addition."

Hundreds	Tens	Ones
1	0	4
−	9	4

Hundreds	Tens	Ones
2	0	1
− 1	4	5

Hundreds	Tens	Ones
1	4	4
−	8	8

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones
1	2	3
−	5	6

Hundreds	Tens	Ones
1	0	5
− 1	0	2

Hundreds	Tens	Ones
2	0	0
− 1	4	4

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Mathematician: ______________________________

"I did these subtractions and checked the answer by addition."

Hundreds	Tens	Ones
	8	0
-	3	4

Hundreds	Tens	Ones
1	0	0
-	8	9

Hundreds	Tens	Ones
1	1	0
-	9	4

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones
2	1	1
- 1	3	8

Hundreds	Tens	Ones
2	0	0
- 1	8	8

Hundreds	Tens	Ones
3	0	0
- 2	2	5

Check:

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Mathematician: ______________________________

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links ×	Cubes in each link =	Total Number of UNIFIX in each link	Number Sentence
2	2		
2	3		
2	4		
2	5		
2	6		
2	7		
2	8		
2	9		

Mathematician:____

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links ×	**Cubes in each link** =	**Total Number of UNIFIX in each link**	**Number Sentence**
2	10		
3	2		
3	3		
3	4		
3	5		
3	6		
3	7		
3	8		

Mathematician:______________________________________

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links X	Cubes in each link =	Total Number of UNIFIX in each link	Number Sentence
3	9		
3	10		
4	2		
4	3		
4	4		
4	5		
4	6		
4	7		

Mathematician:____

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links ×	Cubes in each link =	Total Number of UNIFIX in each link	Number Sentence
4	8		
4	9		
4	10		
5	2		
5	3		
5	4		
5	5		
5	6		

Mathematician: ____________________

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links X	Cubes in each link =	Total Number of UNIFIX in each link	Number Sentence
5	7		
5	8		
5	9		
5	10		
6	2		
6	3		
6	4		
6	5		

Mathematician:____

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links X	Cubes in each link =	Total Number of UNIFIX in each link	Number Sentence
6	6		
6	7		
6	8		
6	9		
6	10		
7	4		
7	5		
7	6		

Mathematician:____

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links X	Cubes in each link =	Total Number of UNIFIX in each link	Number Sentence
7	7		
7	8		
7	9		
7	10		
8	4		
8	5		
8	6		
8	7		

Mathematician:____________________________________

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links	X Cubes in each link	= Total Number of UNIFIX in each link	Number Sentence
8	8		
8	9		
8	10		
9	4		
9	5		
9	6		
9	7		
9	8		

Mathematician:______________________________

"I joined together EQUAL smaller links to make longer links of UNIFIX cubes and recorded the results."

Number of UNIFIX Links X	Cubes in each link =	Total Number of UNIFIX in each link	Number Sentence
9	9		
9	10		
3		24	
2		8	
	4	8	
	5	15	
3		12	
4		16	

Mathematician:____

"I made squares from tiles. I recorded these on graph paper."

Side of Square	Tiles Used	Number Sentence	Area of the Square
Example: 2	4	2 × 2 = 4	4
3			
4			
	25		
6			
7			
8			
9			
	100		
11			

Mathematician:_______________________ "These are graph paper records of my work."

Mathematician:______________________________ "These are graph paper records of my work."

Mathematician:____________________________ "These are graph paper records of my work."

Mathematician:________________________ "These are graph paper records of my work."

Mathematician:______________________ "These are graph paper records of my work."

MATHEMATICIAN: ______________________________

"MY RECORD OF MAKING RECTANGLES OUT OF TILES."

COLUMNS

ROWS

X	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

MATHEMATICIAN: ____________________

"My Number Sentences for Tile Rectangles."

ROWS X	COLUMNS =	TILES	NUMBER SENTENCES
5	7		
5	8		
5	9		
5	10		
6	2		
6	3		
6	4		
6	5		

MATHEMATICIAN: ____________________

"My Number Sentences for Tile Rectangles."

ROWS X	COLUMNS =	TILES	NUMBER SENTENCES
4	8		
4	9		
4	10		
5	2		
5	3		
5	4		
5	5		
5	6		

MATHEMATICIAN: ____________________

"My Number Sentences for Tile Rectangles."

ROWS X	COLUMNS =	TILES	NUMBER SENTENCES
3	9		
3	10		
4	2		
4	3		
4	4		
4	5		
4	6		
4	7		

MATHEMATICIAN: ____________________

"My Number Sentences for Tile Rectangles."

ROWS	X COLUMNS	= TILES	NUMBER SENTENCES
2	10		
3	2		
3	3		
3	4		
3	5		
3	6		
3	7		
3	8		

MATHEMATICIAN ______________________________

"My Number Sentences for Tile Rectangles."

ROWS	X COLUMNS	= TILES	NUMBER SENTENCES
2	2		
2	3		
2	4		
2	5		
2	6		
2	7		
2	8		
2	9		

MATHEMATICIAN: ____________________

"My Beans and Cups Multiplication Table."

CUPS

BEANS IN EACH CUP

X	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

MATHEMATICIAN: ____________________

"I put beans into cups to complete this form. I wrote Number Sentences to show this."

CUPS USED	X BEANS IN EACH CUP	= TOTAL BEANS USED	NUMBER SENTENCES
7	5		
8		16	
9		18	
3		15	
	6	18	
	7	35	
3		12	
4		20	
	4	20	
6		36	
8		16	

MATHEMATICIAN:____________________________________

"I put beans into cups to complete this form. I wrote Number Sentences to show this."

CUPS USED	X BEANS IN EACH CUP	= TOTAL BEANS USED	NUMBER SENTENCES
3		12	
	5	15	
6		12	
4		20	
	6	24	
2		20	
7		21	
	5	25	
	7	28	
3		21	
8		24	

MATHEMATICIAN: ____________________

"I put beans into cups to complete this
form. I wrote Number Sentences to show this."

CUPS USED X	BEANS IN EACH CUP =	TOTAL BEANS USED	NUMBER SENTENCES
9	5		
9	6		
9	7		
9	8		
9	9		
9	10		
9	11		
9	12		

MATHEMATICIAN:______________________________

"I put beans into cups to complete this
form. I wrote Number Sentences to show this."

CUPS USED	X	BEANS IN EACH CUP	=	TOTAL BEANS USED	NUMBER SENTENCES
7		12			
8		4			
8		5			
8		6			
8		7			
8		8			
8		9			
8		10			
8		11			
8		12			
9		4			

MATHEMATICIAN:____

"I put beans into cups to complete this form. I wrote Number Sentences to show this."

CUPS USED X	BEANS IN EACH CUP =	TOTAL BEANS USED	NUMBER SENTENCES
6	10		
6	11		
6	12		
7	4		
7	5		
7	6.		
7	7		
7	8		
7	9		
7	10		
7	11		

MATHEMATICIAN: ______________________________

"I put beans into cups to complete this
form. I wrote Number Sentences to show this."

CUPS USED	X BEANS IN EACH CUP	= TOTAL BEANS USED	NUMBER SENTENCES
5	8		
5	9		
5	10		
5	11		
5	12		
6	4		
6	5		
6	6		
6	7		
6	8		
6	9		

MATHEMATICIAN: ____________________________

"I put beans into cups to complete this form. I wrote Number Sentences to show this."

CUPS USED	X BEANS IN EACH CUP	= TOTAL BEANS USED	NUMBER SENTENCES
4	6		
4	7		
4	8		
4	9		
4	10		
4	11		
4	12		
5	4		
5	5		
5	6		
5	7		

MATHEMATICIAN:______________________________

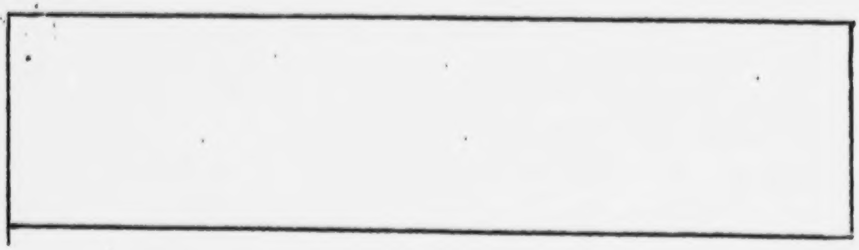
"I put beans into cups to complete this form. I wrote Number Sentences to show this."

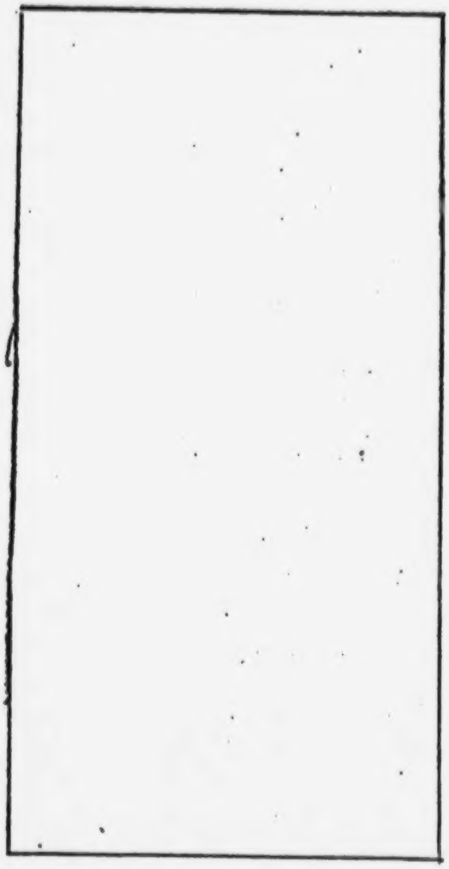
CUPS USED	X BEANS IN EACH CUP	= TOTAL BEANS USED	NUMBER SENTENCES
3	4		
3	5		
3	6		
3	7		
3	8		
3	9		
3	10		
3	11		
3	12		
4	4		
4	5		

1.

Mathematician: ____________________

"I filled these rectangles with base ten blocks to find the areas."





2.

Mathematician: ______________________________

"I filled these rectangles with base ten blocks to find the areas."

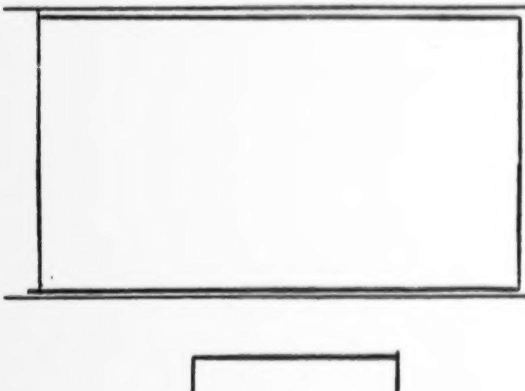
3.

Mathematician:______________________________

"I tiled these rectangles with base ten blocks to find the areas."

Mathematician:____

"I made rectangles from Base Ten Ones and recorded these."

	WIDTH (Rows)	LENGTH (Columns)	AREA (Total Square Units)
			

Mathematician:____

"I made rectangles from Base Ten Ones and recorded these."

	ROWS	COLUMNS	AREA

Mathematician: ____________________________

"I made these rectangles from base ten ones, entered the number in the table, and made trades to show this as tens and ones."

Rectangle Size Made	TENS	ONES
Example: 3 × 12	3	6
2 × 3		
7 × 6		
3 × 8		
4 × 2		
5 × 2		
3 × 5		
5 × 9		
4 × 9		

Mathematician:____

"I made these rectangles from base ten ones, entered the number in the table, and made trades to show this as tens and ones."

Rectangle Size Made	TENS	ONES
3 x 9		
4 x 7		
5 x 7		
3 x 9		
3 x 7		
4 x 8		
6 x 2		
6 x 3		
6 x 4		

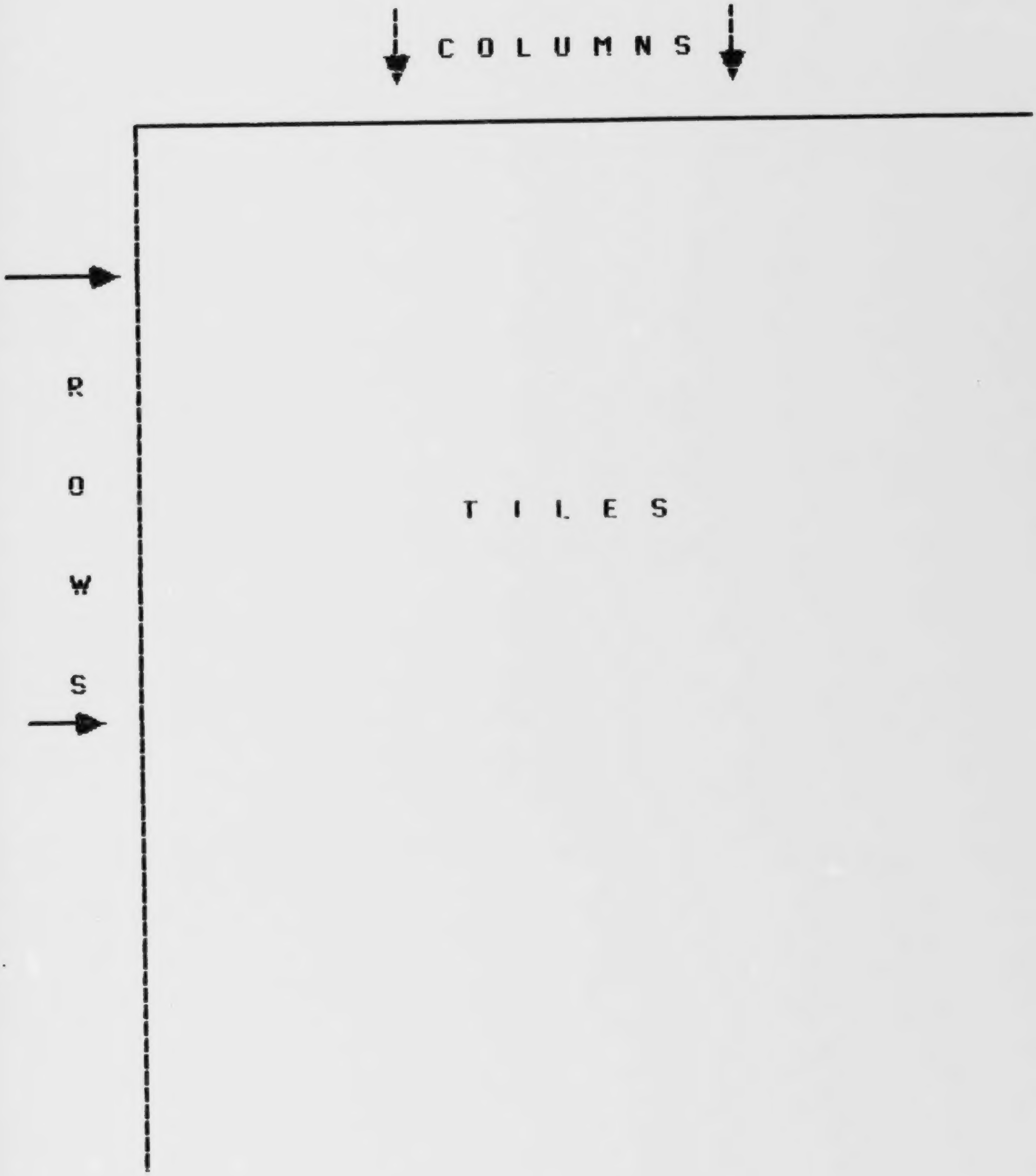
Mathematician:____

"I made these rectangles from base ten ones, entered the number in the table, and made trades to show this as tens and ones."

Rectangle Size Made	TENS	ONES
8 x 10		
9 x 7		
9 x 3		
11 x 8		
12 x 4		
5 x 11		
6 x 13		
5 x 6		
7 x 9		

MATHEMATICIAN: ______________________________

"These are my rectangles made of Base Ten Ones and the Number Sentences for them."


COLUMNS
ROWS
TILES

MATHEMATICIAN:______________________________

"I made rectangles from ________________to complete these number sentences."

1 x 4 = ______

5 x 2 = ______

______ = 3 x 1

______ = 4 x 2

______ = 5 x 3

______ = 3 x 3

3 x 4 = ______

4 x 2 = ______

2 x 5 = ______

______ = 5 x 2

6 x 1 = ______

7 x 2 = ______

______ = 2 x 6

______ = 2 x 7

5 x 4 = ______

6 x 3 = ______

______ = 2 x 7

______ = 3 x 4

______ = 7 x 3

5 x 5 = ______

4 x 4 = ______

______ = 2 x 2

______ = 3 x 3

Mathematician:____

"I made smaller UNIFIX cube links from long UNIFIX cube lengths."

UNIFIX CUBE LENGTH	÷ UNIFIX LINK LENGTH	= NUMBER OF LINKS	+ REMAINDER	NUMBER SENTENCE
Example: 6	2	3	0	6 ÷ 2 = 3
6	3			
6	4			
4	2			
4	3			
5	2			
5	3			
7	2			
7	3			
7	4			

Mathematician:____

"I made smaller UNIFIX cube links from long UNIFIX cube lengths."

UNIFIX CUBE LENGTH	÷ UNIFIX LINK LENGTH	= NUMBER OF LINKS	+ REMAINDER	NUMBER SENTENCE
8	2			
8	3			
8	4			
8	5			
9	2			
9	3			
9	4			
9	5			
9	6			
10	2			

Mathematician:____

"I made smaller UNIFIX cube links from long UNIFIX cube lengths."

UNIFIX CUBE LENGTH	÷ UNIFIX LINK LENGTH	= NUMBER OF LINKS	+ REMAINDER	NUMBER SENTENCE
10	3			
10	4			
10	5			
10	6			
11	2			
11	3			
11	4			
12	2			
12	3			
12	4			

Mathematician:____

"I made rectangles if I could from the tiles."

Tiles ÷	Rows =	Columns	+ Remainder	Number Sentence
3				
4				
Example 5	2	2	1	5 = 2 × 2 + 1
6				
7				
8				
9				
10				
11				

Mathematician:____

"I made rectangles if I could from the tiles."

Tiles ÷	Rows =	Columns	+ Remainder	Number Sentence
12				
13				
14				
15				
16				
17				
18				
19				
20				

Mathematician:______________________________________

"I made rectangles if I could from the tiles."

Tiles ÷	Rows =	Columns	+ Remainder	Number Sentence
21				
22				
23				
24				
25				
26				
27				
28				
29				

Mathematician: ______________________________

"I used tiles to complete the open sentence. I then wrote sentences that were related to that one."

OPEN SENTENCE	SAME FACT ANOTHER WAY	2 RELATED SENTENCES	
$5 \times 4 = \square$			
___ $= 5 \times 5$			
$\square = 5 \times 6$			
$\square = 6 \times 3$			
___ $= 6 \times 4$			
$6 \times 5 =$ ___			
$6 \times 6 = \square$			
$4 \times 9 =$ ___			
$5 \times 8 = \square$			
$5 \times 7 =$ ___			

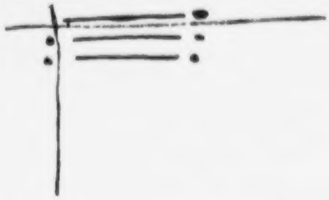
Mathematician: ____________________

"I used tiles to complete the open sentence. I then wrote sentences that were related to that one."

OPEN SENTENCE	SAME FACT ANOTHER WAY	2 RELATED SENTENCES	
Example: $\underline{12} = 3 \times 4$	$4 \times 3 = 12$	$12 \div 3 = 4$	$12 \div 4 = 3$
$\boxed{} = 2 \times 5$			
$4 \times 2 = \_\_\_$			
$5 \times 3 = \boxed{}$			
$\_\_\_ = 3 \times 6$			
$3 \times 7 = \boxed{}$			
$4 \times 4 = \_\_\_$			
$4 \times 7 = \boxed{}$			
$\boxed{} = 4 \times 6$			

MATHEMATICIAN: ______________________________

"Here are pictures of my multiplication showing all partial products."

Side One	Side Two	Picture	Partial Products
EXAMPLE: 11 (10+1)	2		20 + 2
11	3		
11	4		
11	5		

MATHEMATICIAN:______________________________

"Here are pictures of my multiplication showing all partial products."

Side One	Side Two	Picture	Partial Products
11	6		
11	7		
11	8		
11	9		

MATHEMATICIAN:__________________________________

"Here are pictures of my multiplication
showing all partial products."

Side One	Side Two	Picture	Partial Products
12 (10+2)	2		
12	3		
12	4		
12	5		

MATHEMATICIAN:______________________________

"Here are pictures of my multiplication showing all partial products."

Side One	Side Two	Picture	Partial Products
12	6		
12	7		
12	8		
12	9		

MATHEMATICIAN:________________________________

"Here are pictures of my multiplication showing all partial products."

Side One	Side Two	Picture	Partial Products
13	2		
13	4		
13	6		
13	7		

MATHEMATICIAN: ____________________________

"Here are multiplications showing tens and ones."

Side One	Side Two	Number Sentences
Example: 11	3	3 × 11 = 33 [illegible]
11	4	
11	5	
11	6	
11	7	
11	8	

MATHEMATICIAN: ______________________

"Here are multiplications showing tens and ones."

Side One	Side Two	Number Sentences
11	9	
12	3	
12	4	
12	5	
12	6	
12	7	

MATHEMATICIAN:______________________________

"Here are multiplications showing tens and ones."

Side One	Side Two	Number Sentences
21	2	
21	3	
21	4	
21	5	
21	6	
21	7	

MATHEMATICIAN:________________________________

"Here are multiplications showing tens and ones."

Side One	Side Two	Number Sentences
21	8	
21	9	
24	2	
24	4	
24	5	
24	6	

MATHEMATICIAN:______________________________

"Here are multiplications showing tens and ones."

Side One	Side Two	Number Sentences
2 4	8	
2 5	2	
2 5	3	
2 3	4	
2 3	3	
2 3	2	

Mathematician:____

"I made rectangles from base ten blocks to do these multiplications."

Multiplication

Tens	Ones
2	5
x 2	5

Rectangles Made

x

Products Recorded

Hundreds	Tens	Ones

Multiplication

Tens	Ones
2	3
x 2	6

Rectangles Made

x

Products Recorded

Hundreds	Tens	Ones

Multiplication

Tens	Ones
3	1
x 2	4

Rectangles Made

x

Products Recorded

Hundreds	Tens	Ones

Mathematician: ______________________________

"I made rectangles from base ten blocks to do these multiplications."

Multiplication

Tens	Ones
2	5
×2	2

Rectangles Made

x	

Products Recorded

Hundreds	Tens	Ones

Multiplication

Tens	Ones
1	4
×1	4

Rectangles Made

x	

Products Recorded

Hundreds	Tens	Ones

Multiplication

Tens	Ones
1	5
×1	5

Rectangles Made

x	

Products Recorded

Hundreds	Tens	Ones

Mathematician:____

"I made rectangles from base ten blocks to do these multiplications."

Multiplication

Tens	Ones
2	4
×2	1

Rectangles Made

×

Products Recorded

Hundreds	Tens	Ones

Multiplication

Tens	Ones
1	8
×2	5

Rectangles Made

×

Products Recorded

Hundreds	Tens	Ones

Multiplication

Tens	Ones
2	3
× 2	4

Rectangles Made

×

Products Recorded

Hundreds	Tens	Ones

Mathematician:____

"I made rectangles from base ten blocks to do these multiplications."

Multiplication

Tens	Ones
1	2
× 1	3

Rectangles Made

×

Products Recorded

Hundreds	Tens	Ones

Multiplication

Tens	Ones
1	6
× 2	1

Rectangles Made

×

Products Recorded

Hundreds	Tens	Ones

Multiplication

Tens	Ones
1	7
× 2	2

Rectangles Made

×

Products Recorded

Hundreds	Tens	Ones

X	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Mathematician:________________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
21	15		
21	18		
21	21		
12	24		
15	25		
22	22		
16	24		
13	25		
12	28		

Mathematician:________________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
14	14		
14	15		
14	16		
14	17		
14	18		
14	19		
14	20		
14	21		

Mathematician: ______________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
12	20		
13	13		
13	14		
13	15		
13	16		
13	17		
13	18		
13	19		
13	20		

Mathematician:____________________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
EXAMPLE: 13 (10+3)	2	26	13 × 2 = 26
13	3		
13	4		
13	5		
13	6		
13	7		
13	8		
13	9		
14	2		

Mathematician:____________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
14	3		
14	4		
14	5		
14	6		
14	7		
14	8		
14	9		
17	2		
17	3		

Mathematician:______________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
17	4		
17	5		
17	6		
17	7		
17	8		
17	9		
20	2		
20	3		
20	4		

Mathematician:______________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
20	5		
20	6		
20	7		
20	8		
20	9		
22	2		
22	3		
22	4		
22	5		

Mathematician:______________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
11	20		
12	12		
12	13		
12	14		
12	15		
12	16		
12	17		
12	18		
12	19		

Mathematician: ____________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
EXAMPLE: 11 (10+1)	11 (10+1)	121	11 × 11 = 121
11	12		
11	13		
11	14		
11	15		
11	16		
11	17		
11	18		
11	19		

Mathematician:____________________________________

"I worked these multiplications by building rectangles with base ten blocks."

Side One	Side Two	Rectangle	Number Sentence
EXAMPLE: 13	10	130	13 × 10 = 130
14	10		
15	10		
16	10		
17	10		
18	10		
19	10		
20	10		
21	10		

SIDE ONE

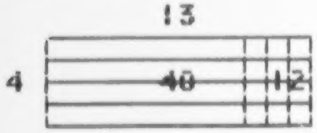
SIDE TWO

Mathematician:______________________________

"Here are multiplications done by making rectangles with base ten blocks."

Picture **Computation Form** **Length x width = area**

Example:



Tens	Ones
1	3
x	4
1	2
4	0
5	2

13 x 4 = 52

Tens	Ones

Tens	Ones

Mathematician:____

"Here are multiplications done by making rectangles with base ten blocks."

Picture	Computation Form	Length x width = area
	Tens Ones +	
	Tens Ones +	
	Tens Ones +	

Mathematician:____________________________________

"I worked the multiplications by using base ten blocks,
drew pictures of the base ten materials used."

Computation Given **Picture of Multiplication** **Partial Products and Answers**

16
×21

Hundreds	Tens	Ones
+		

18
×31

Hundreds	Tens	Ones
+		

Mathematician:________________________________

"I worked the multiplications by using base ten blocks, drew pictures of the base ten materials used."

Computation Given	Picture of Multiplication	Partial Products and Answers
23 ×40		
34 ×22		

Hundreds	Tens	Ones
+		

Hundreds	Tens	Ones
+		

Mathematician:____________________________

"I worked the multiplications by using base ten blocks, drew pictures of the base ten materials used."

Computation Given **Picture of Multiplication** **Partial Products and Answers**

34
x21

Hundreds	Tens	Ones
+		

23
x27

Hundreds	Tens	Ones
+		

Mathematician:______________________________

"From the base ten blocks given, I built the largest rectangle I could inside the outline."

Base Ten Blocks			Outline
Hundreds	**Tens**	**Ones**	
	6	5	
	9	4	

Mathematician:____

"From the base ten blocks given, I built the largest rectangle I could inside the outline."

Base Ten Blocks			Outline
Hundreds	**Tens**	**Ones**	
1	3	7	
	9	9	

MATHEMATICIAN:____

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
EXAMPLE! 7	2	3	7 ÷ 2 = 3 R1
8	2	4	8 ÷ 2 = 4
7	3		
7	4		
7	5		
8	3		
8	4		
8	5		
8	6		
9	2		

MATHEMATICIAN:________________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
24	6		
24	7		
24	8		
24	10		
24	12		
24	13		
25	4		
25	5		
25	6		
26	2		

MATHEMATICIAN:______________________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
22	4		
22	10		
22	11		
22	12		
23	2		
23	3		
24	2		
24	3		
24	4		
24	5		

MATHEMATICIAN: ______________________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
20	12		
21	2		
21	3		
21	4		
21	5		
21	6		
21	7		
21	8		
22	2		
22	3		

MATHEMATICIAN: ____________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
20	2		
20	3		
20	4		
20	5		
20	6		
20	7		
20	8		
20	9		
20	10		
20	11		

MATHEMATICIAN:____

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
18	7		
18	8		
18	9		
18	10		
19	2		
19	3		
19	5		
19	8		
19	9		
19	10		

MATHEMATICIAN:______________________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
16	8		
16	10		
17	2		
17	3		
17	4		
18	2		
18	3		
18	4		
18	5		
18	6		

MATHEMATICIAN:______________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
14	3		
14	7		
15	3		
15	4		
15	5		
15	6		
16	2		
16	3		
16	4		
16	5		

MATHEMATICIAN: ____________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
12	3		
12	4		
12	2		
12	6		
13	3		
13	4		
13	5		
13	6		
13	7		
14	2		

MATHEMATICIAN:______________________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
10	7		
10	8		
10	9		
11	2		
11	3		
11	4		
11	5		
11	6		
11	7		
11	8		

MATHEMATICIAN:______________________________

"I put beans into cups to complete the form.
I wrote number sentences to show this."

Beans Used	Beans in Each Cup	Cups Used	Number Sentence
9	3		
9	4		
9	5		
9	6		
9	7		
10	2		
10	3		
10	4		
10	5		
10	6		

MATHEMATICIAN: ____________________

"I used ____________________
to work these."

$3\overline{)\,11}$ $3\overline{)\,12}$ $3\overline{)\,13}$

$3\overline{)\,15}$ $3\overline{)\,17}$ $3\overline{)\,19}$

$3\overline{)\,21}$ $3\overline{)\,25}$ $4\overline{)\,12}$

$4\overline{)\,14}$ $4\overline{)\,15}$ $4\overline{)\,16}$

$4\overline{)\,19}$ $4\overline{)\,21}$ $4\overline{)\,22}$

$4\overline{)\,25}$ $4\overline{)\,27}$ $4\overline{)\,28}$

MATHEMATICIAN: ____________________

"I used ____________________
to work these."

$5\overline{)9}$ $5\overline{)10}$ $5\overline{)12}$

$5\overline{)14}$ $5\overline{)15}$ $5\overline{)17}$

$5\overline{)18}$ $5\overline{)20}$ $5\overline{)21}$

$5\overline{)24}$ $6\overline{)9}$ $6\overline{)11}$

$6\overline{)12}$ $6\overline{)14}$ $6\overline{)15}$

$6\overline{)18}$ $6\overline{)19}$ $6\overline{)20}$

MATHEMATICIAN: ______________________________

"I used ______________________________
to work these."

$6\overline{)22}$ $6\overline{)23}$ $6\overline{)27}$

$7\overline{)11}$ $7\overline{)14}$ $7\overline{)16}$

$7\overline{)18}$ $7\overline{)19}$ $7\overline{)21}$

$7\overline{)23}$ $7\overline{)25}$ $7\overline{)27}$

$8\overline{)12}$ $8\overline{)15}$ $8\overline{)}$[illegible]

$8\overline{)21}$ $8\overline{)24}$ $8\overline{)25}$

MATHEMATICIAN: ____________________

"I used ____________________
to work these."

$9\,\overline{)\,12}$	$9\,\overline{)\,20}$	$9\,\overline{)\,28}$
$9\,\overline{)\,30}$	$9\,\overline{)\,35}$	$9\,\overline{)\,90}$
$10\,\overline{)\,12}$	$10\,\overline{)\,14}$	$10\,\overline{)\,16}$
$10\,\overline{)\,24}$	$10\,\overline{)\,28}$	$10\,\overline{)\,30}$
$12\,\overline{)\,15}$	$12\,\overline{)\,23}$	$12\,\overline{)\,24}$
$12\,\overline{)\,30}$	$12\,\overline{)\,33}$	$12\,\overline{)\,36}$

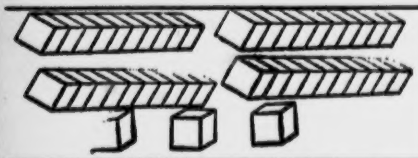
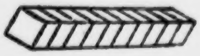
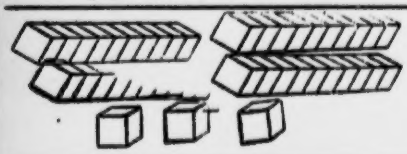
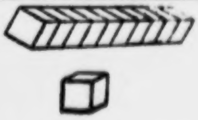
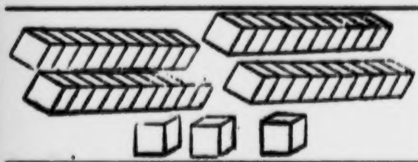
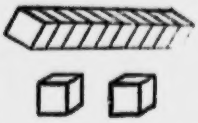
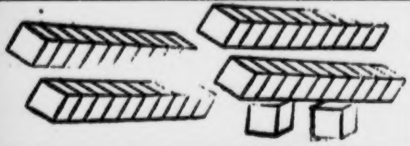
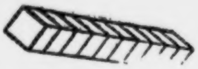
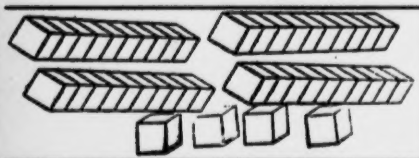
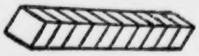
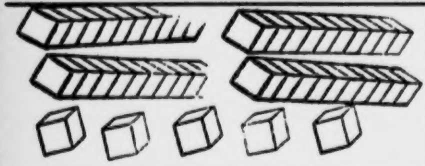
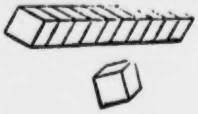
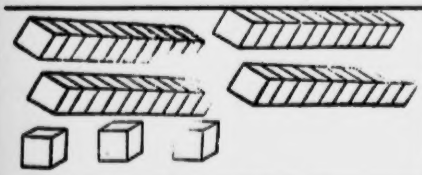
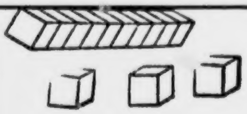
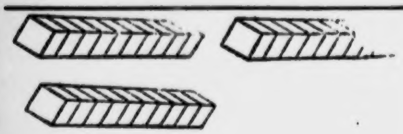
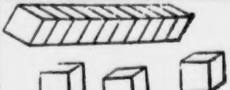
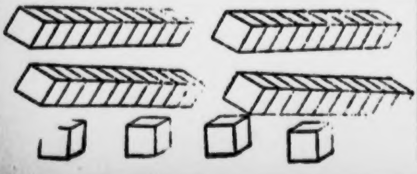
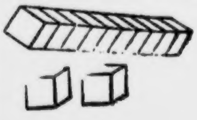
MATHEMATICIAN:______________________________

"i used Base Ten blocks and I traded tens for ones when I had to in order to divide."

Base Ten Materials	Side One	Side Two	Number Sentences
Example: ▬ ☐ ☐ ☐ ☐ ▬ ☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	27÷ 3 = 9
▬ ☐ ☐ ☐ ▬ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐		
▬ ☐ ☐ ☐ ▬ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐		
▬ ☐ ☐ ☐ ▬ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐		
▬ ☐ ☐ ☐ ▬ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐		
▬ ☐ ☐ ☐ ▬ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
▬ ☐ ☐ ☐ ▬ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
☐ ▬ ☐ ☐ ☐ ▬ ☐ ☐ ☐	☐☐☐☐☐☐☐☐☐☐		

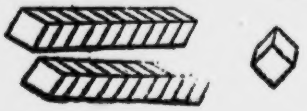
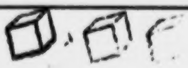
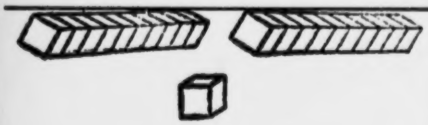
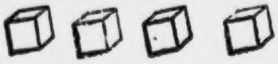
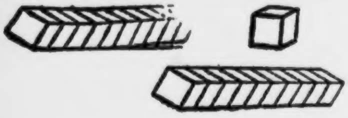
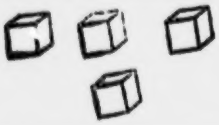
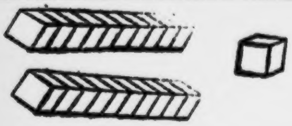
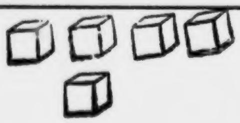
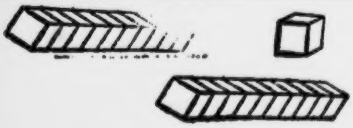
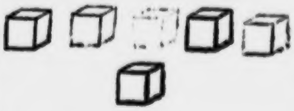
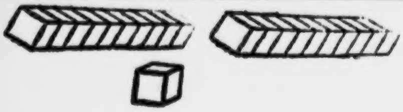
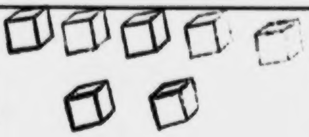
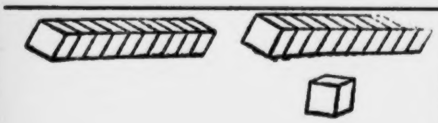
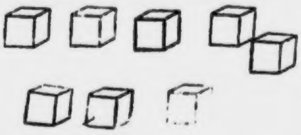
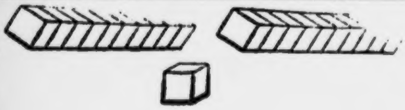
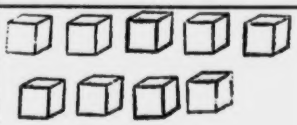
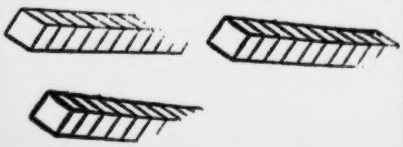
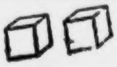
MATHEMATICIAN:______________________________

"I used Base Ten blocks and I traded tens for ones when I had to in order to divide."

Base Ten Materials	Side One	Side Two	Number Sentences
			
			
			
			
			
			
			
			
			

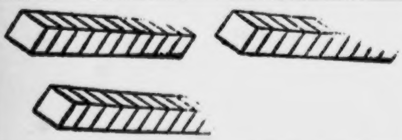
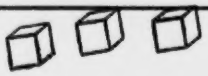
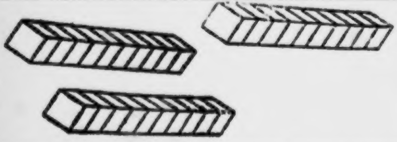
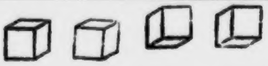
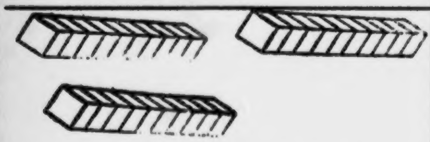
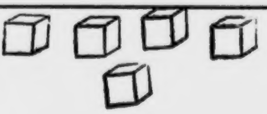
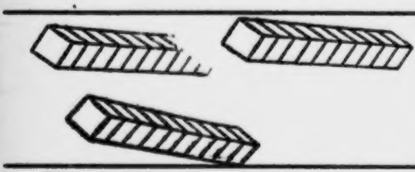
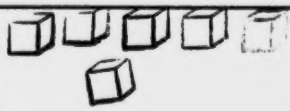
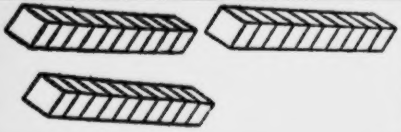
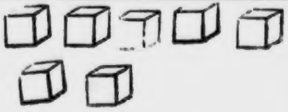
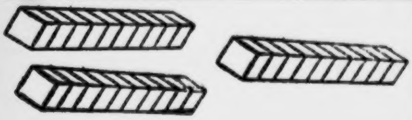
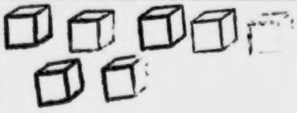
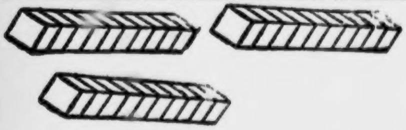
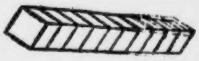
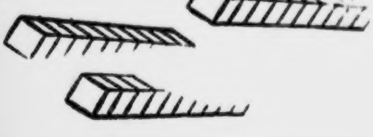
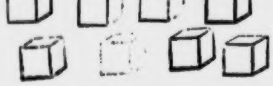
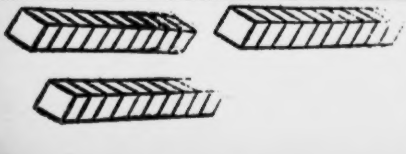
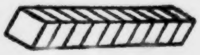
MATHEMATICIAN: ______________________________

"I used Base Ten blocks and I traded tens for ones when I had to in order to divide."

Base Ten Materials	Side One	Side Two	Number Sentences
			
			
			
			
			
			
			
			
			

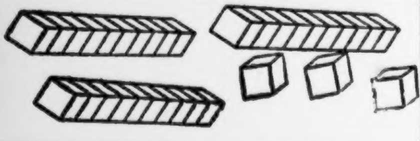
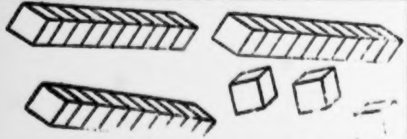
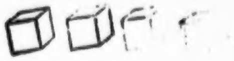
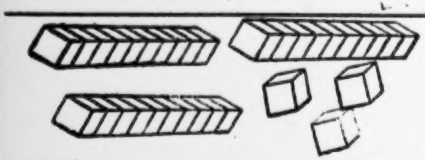
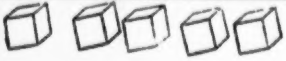
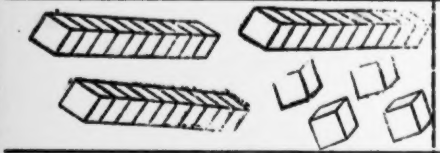
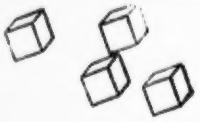
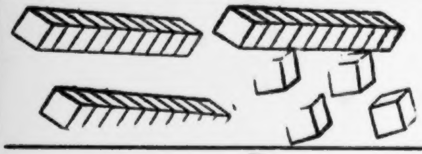
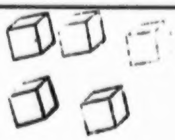
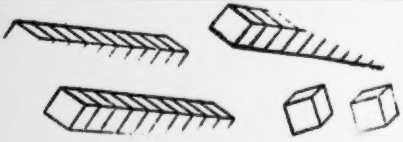
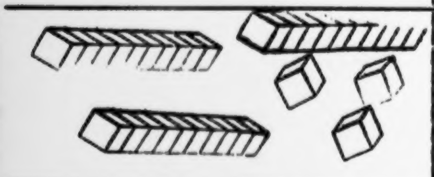
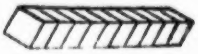
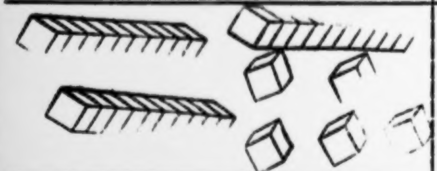
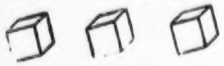
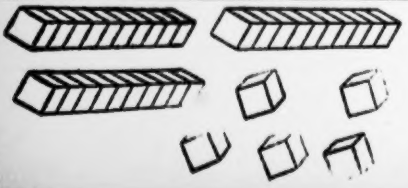
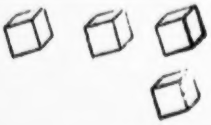
MATHEMATICIAN:____________________________________

"I used Base Ten blocks and I traded tens for ones when I had to in order to divide."

Base Ten Materials	Side One	Side Two	Number Sentences
			
			
			
			
			
			
			
			
			

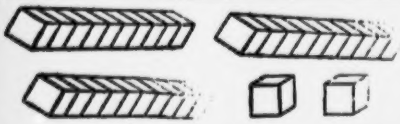
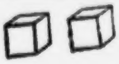
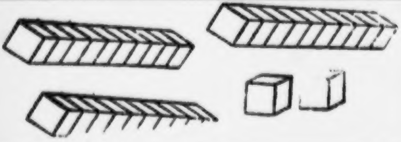
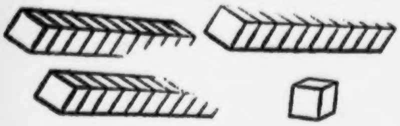
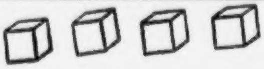
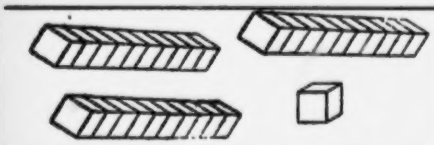
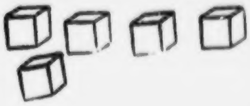
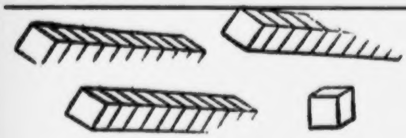
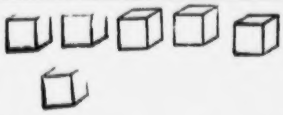
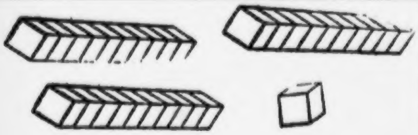
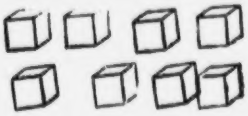
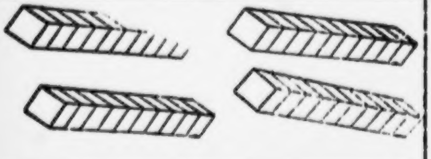
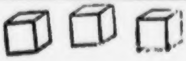
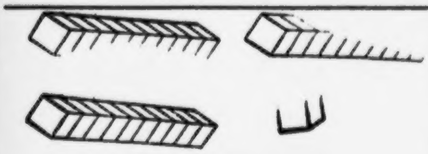
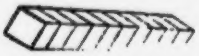
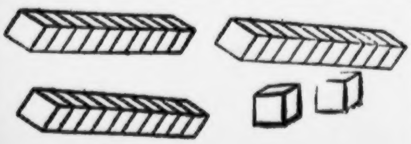
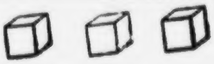
MATHEMATICIAN:______________________________

"I used Base Ten blocks and I traded tens for ones when I had to in order to divide."

Base Ten Materials	Side One	Side Two	Number Sentences
			
			
			
			
			
			
			
			
			

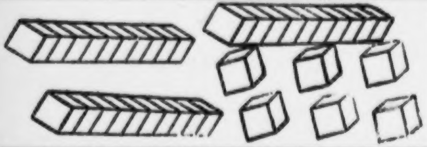
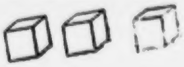
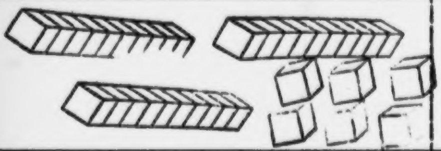
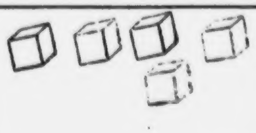
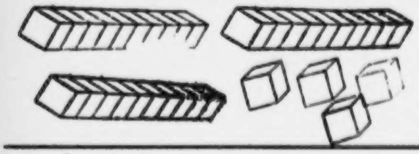
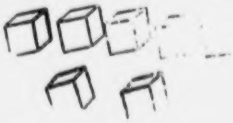
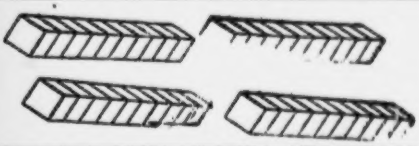
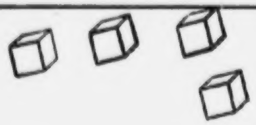
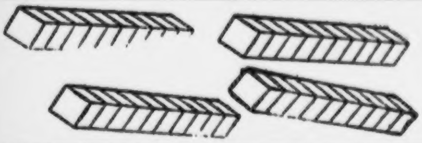
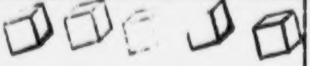
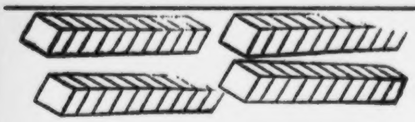
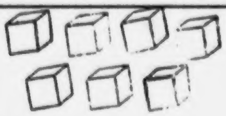
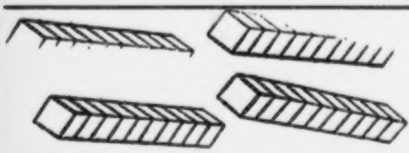
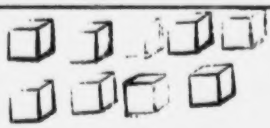
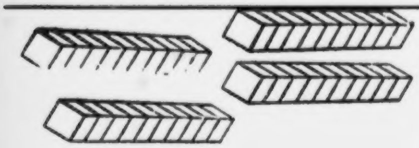
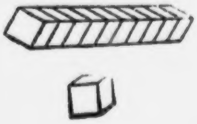
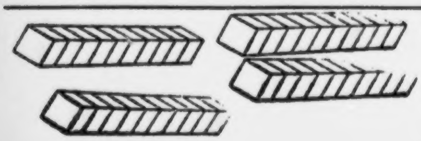
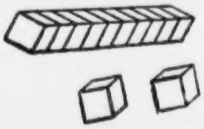
MATHEMATICIAN:______________________________

"I used Base Ten blocks and I traded tens for ones when I had to in order to divide."

Base Ten Materials	Side One	Side Two	Number Sentences
			
			
			
			
			
			
			
			
			

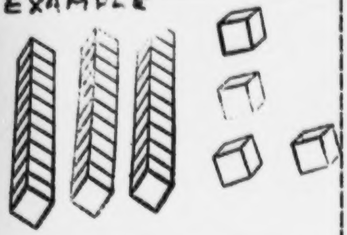
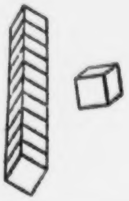
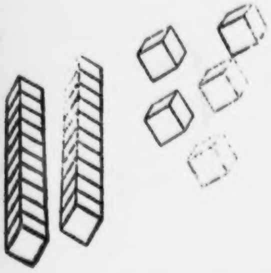
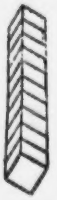
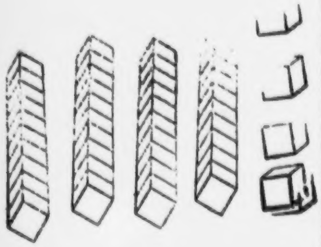
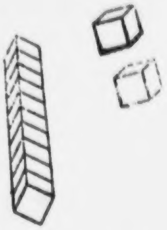
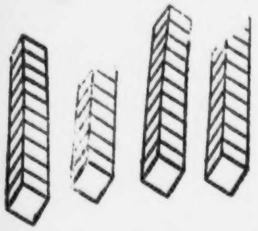
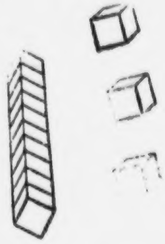
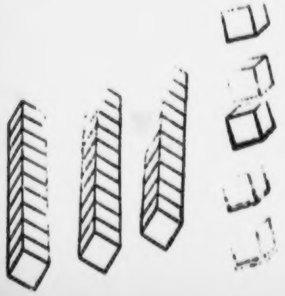
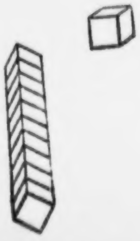
MATHEMATICIAN: ____________________________

"I used Base Ten blocks and I traded tens for ones when
I had to in order to divide."

Base Ten Materials	Side One	Side Two	Number Sentences
			
			
			
			
			
			
			
			
			

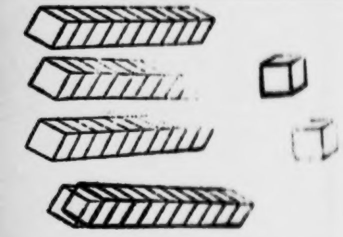
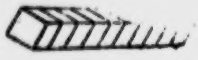
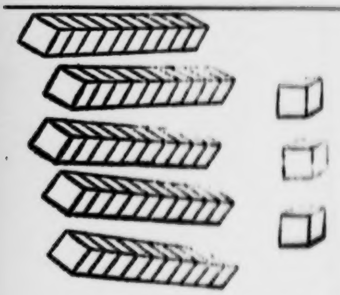
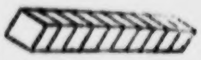
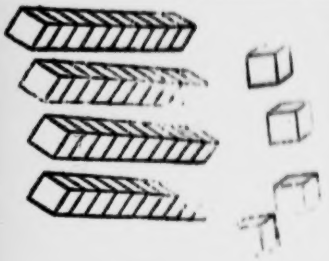
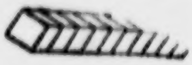
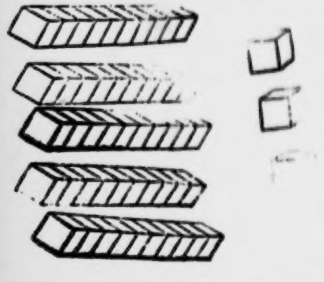
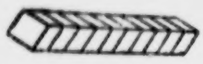
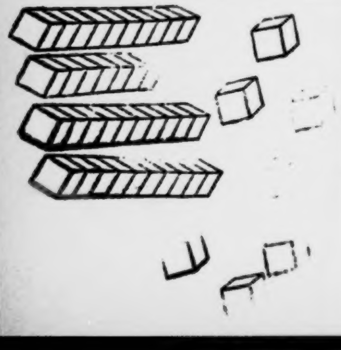
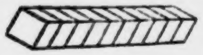
MATHEMATICIAN:________________________________

"I made rectangles as big as I could from the base ten blocks shown."

Base Ten Blocks to be used	Side One	Side Two	Number Sentence
EXAMPLE 		3	34 ÷ 11 = 3 R1
			
			
			
			

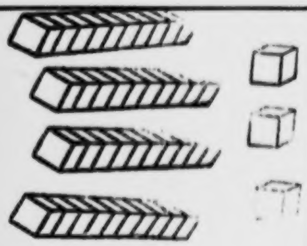
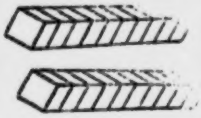
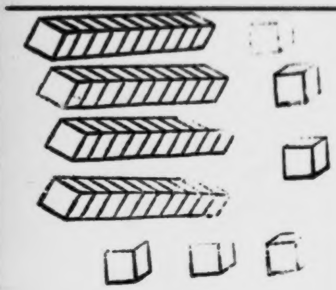
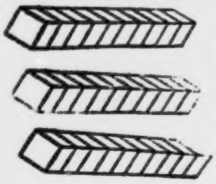
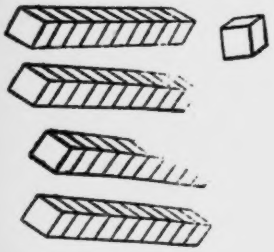
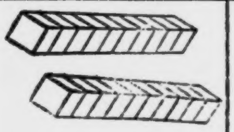
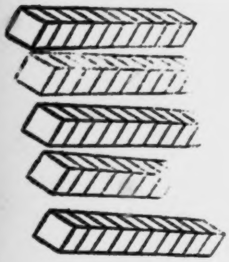
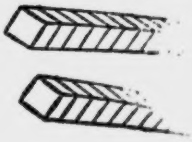
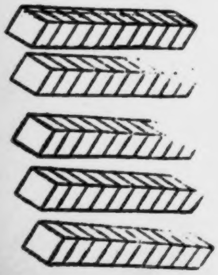
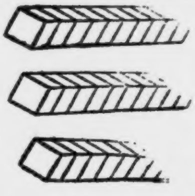
MATHEMATICIAN:______________________________

"I made rectangles as big as I could from the base ten blocks shown."

Base Ten Blocks to be used	Side One	Side Two	Number Sentence
			
			
			
			
			

MATHEMATICIAN:________________________________

"I made rectangles as big as I could from the base ten blocks shown."

Base Ten Blocks to be used	Side One	Side Two	Number Sentence
			
			
			
			
			

MATHEMATICIAN: ______________________________

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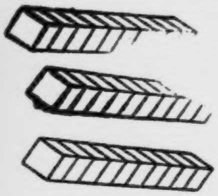
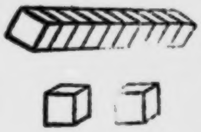
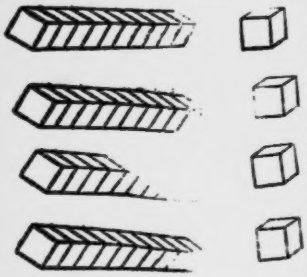
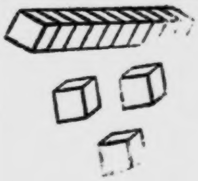
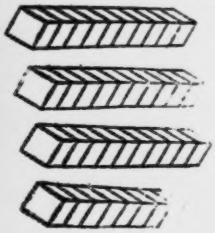
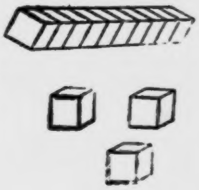
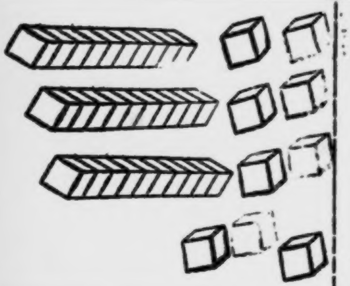
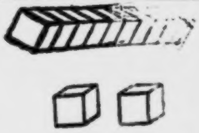
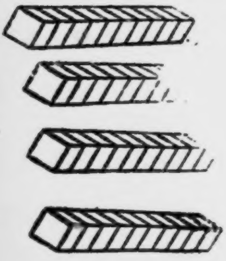
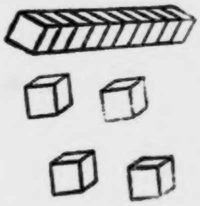
Base Ten Blocks to be used	Side One	Side Two	Number Sentence
			
			
			
			
			

MATHEMATICIAN: ______________________________

"I made rectangles as big as I could from
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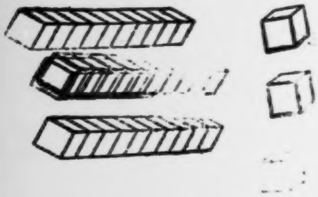
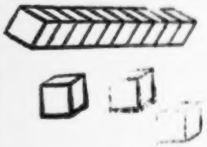
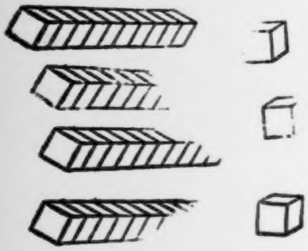
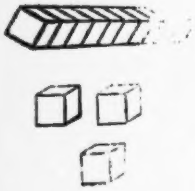
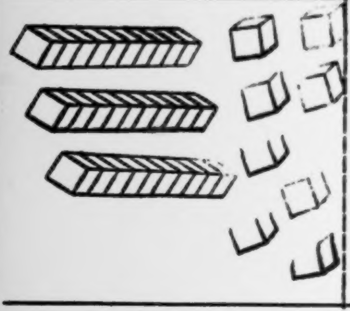
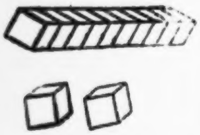
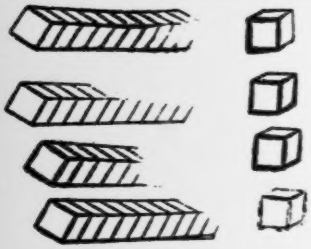
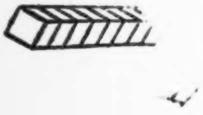
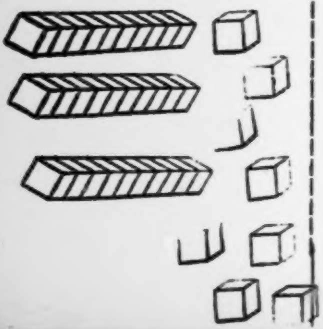
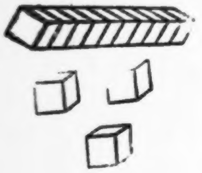
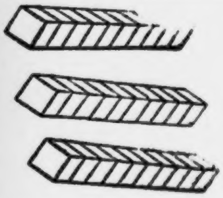
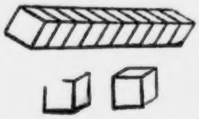
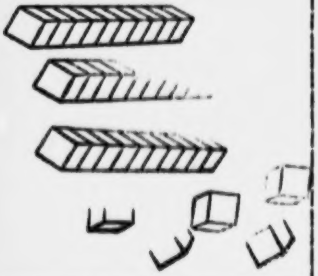
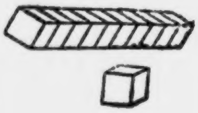
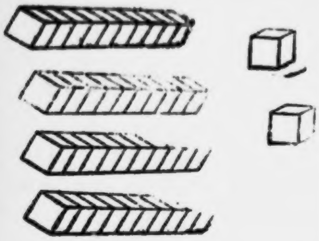
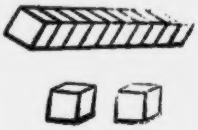
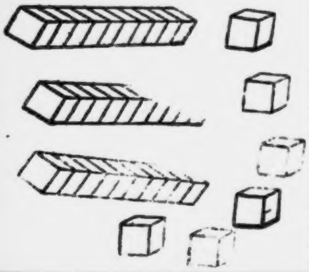
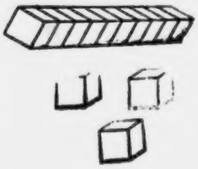
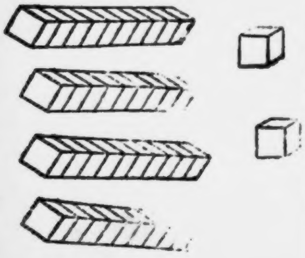
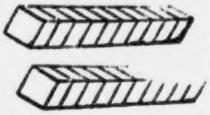
Base Ten Blocks to be used	Side One	Side Two	Number Sentence
			
			
			
			
			

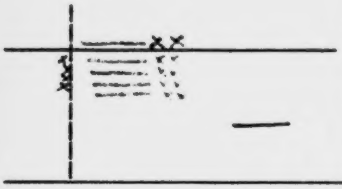
MATHEMATICIAN:______________________________

"I made rectangles as big as I could from the base ten blocks shown."

Base Ten Blocks to be used	Side One	Side Two	Number Sentence
			
			
			
			
			

MATHEMATICIAN:________________________________

"i worked divisions by making rectangles with base ten blocks."

Rectangle Pictures	**Computation Form**	**Rectangle Picture**	**Computation Form**
Example 	$\begin{array}{r} 4 \\ 12\overline{)58} \\ \underline{48} \\ 10 \end{array}$		

MATHEMATICIAN:______________________________

"I worked divisions by making rectangles with base ten blocks."

Rectangle Pictures	Computation Form	Rectangle Picture	Computation Form

MATHEMATICIAN:__________________________________

"I worked divisions by making rectangles with base ten blocks."

Rectangle Pictures	Computation Form	Rectangle Picture	Computation Form

MATHEMATICIAN:________________________________

"I made rectangles from tiles in as many ways as I could."

Number of Tiles	Largest Rectangles made	Other Rectangles made	Number Sentences
Example: 8	2 x 4 8 x 1	2 x 2	8 = 2 x 4 8 = 8 x 1 8 = 2 (2 x 2)
9			
10			
11			
12			
13			
14			
15			

MATHEMATICIAN:______________________________

"I made rectangles from tiles in as many ways as I could."

Number of Tiles	Largest Rectangles made	Other Rectangles made	Number Sentences
16			
17			
18			
19			
20			
21			
22			
23			

MATHEMATICIAN:________________________________

"I made rectangles from tiles in as many ways as I could."

Number of Tiles	Largest Rectangles made	Other Rectangles made	Number Sentences
24			
25			
26			
27			
28			
29			
30			

MATHEMATICIAN:____________________________________

"I made rectangles from tiles in as many ways as I could."

Number of Tiles	Largest Rectangles made	Other Rectangles made	Number Sentences
Example 3	1 × 3	1 × 2 1 × 1	3 = 1 × 3 3 = 1 × 2 + 1 3 = 3(1 × 1)
4			
5			
6			
7			
8			
9			
10			

MATHEMATICIAN:______________________________

"I made rectangles from tiles in as many ways as I could."

Number of Tiles	Largest Rectangles made	Other Rectangles made	Number Sentences
11			
12			
13			
14			
15			
16			
17			
18			

MATHEMATICIAN:______________________________

"I made rectangles from tiles in as many ways as I could."

Number of Tiles	Largest Rectangles made	Other Rectangles made	Number Sentences
19			
20			
21			
22			
23			
24			
25			
26			

MATHEMATICIAN:______________________________

"I made rectangles from tiles in as many ways as I could."

Number of Tiles	Largest Rectangles made	Other Rectangles made	Number Sentences
27			
28			
29			
30			
31			
32			
33			
34			

MATHEMATICIAN:______________________________

"I made rectangles from tiles in as many ways as I could."

Number of Tiles	Largest Rectangles made	Other Rectangles made	Number Sentences
35			
36			
37			
38			
39			
40			
41			
42			

MENU

HARRY'S DESERT INN

Quarter Pounder	$ 1.39
with cheese	$ 1.69
☆ Harry's Special	$ 2.24
Hot Ham 'n' Cheese	$ 1.83
Roast Beef	$ 1.89
Bagels	$ .49
Cheese	$ .69
Tomatoes	$ .15
Lettuce	$ .10
Bacon Burger	$ 1.79
Apple Turnover	$ .69
Soft Drinks:	
Large	$ .75
Small	$ .49
Milk: Large	$ .60
Small	$ .45
Milk Shakes	$ 1.29
Malted Milks	$ 1.39
Ice Cream Bars	$ .39
Ice Cream Cones:	
One scoop	$ .60
Two Scoops	$ .89
Super Cones	$ 1.19

Mathematician:____

"I found the cost of these orders at Harry's Desert Inn."

ORDER 1:

One Quarter Pounder with cheese, and
One large Soft drink, and
One Apple turnover

Total cost: _______

ORDER 2:

One Harry's Special, and
One Malted Milk, and
One Apple turnover

Total cost: _______

ORDER 3:

Two Roast Beef, and
Two small Milk, and
Two, two-scoop ice cream cones

Total cost: _______

ORDER 4:

Six ice cream bars, and
Two Super cones

Total cost: _______

ORDER 5:

Three Bagels with cheese, and
Three Milk Shakes, and
Two one-scoop cones, and
One ice cream bar

Total cost: _______

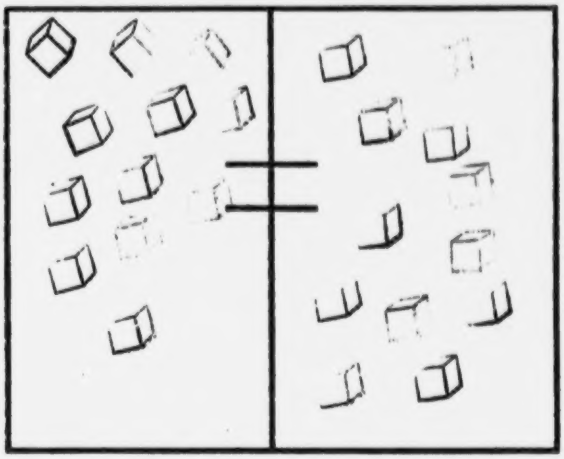
ORDER 6:

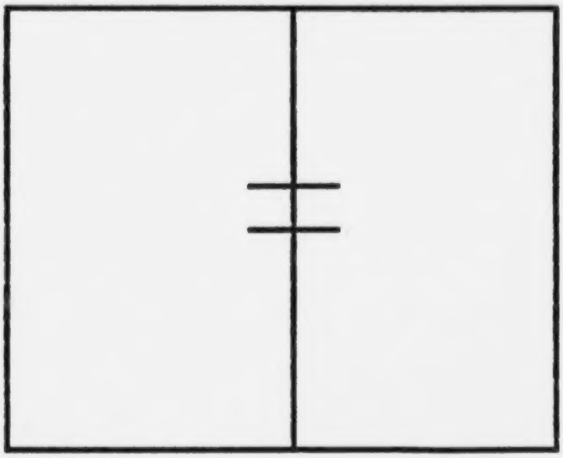
One Bagel with tomatoes, and
One Apple turnover, and
One Large Milk

Total cost: _______

Mathematician:____________________________________

"I made an equality board as shown, grouped the ONES in different ways and wrote as many DIFFERENT number sentences as I had room to write."





Mathematician: ______________________________

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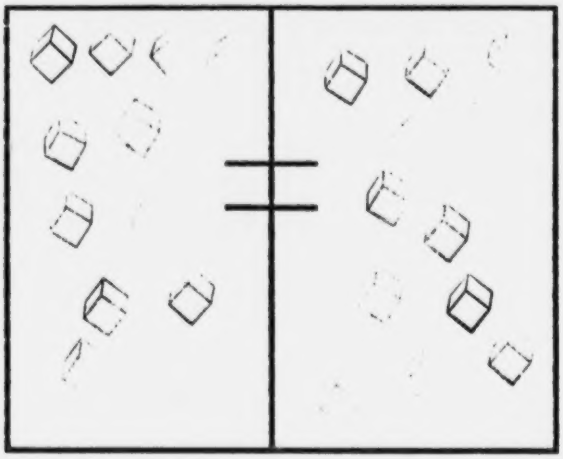
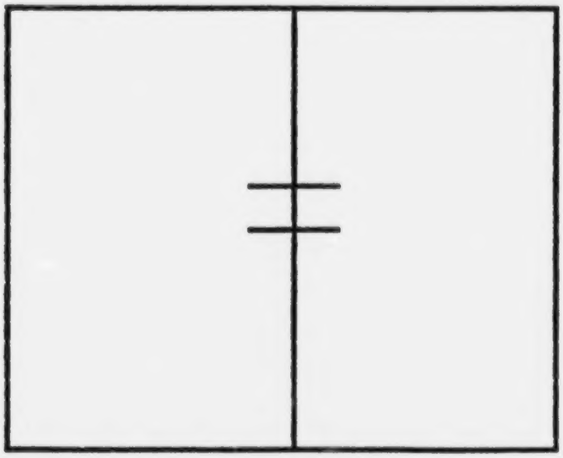
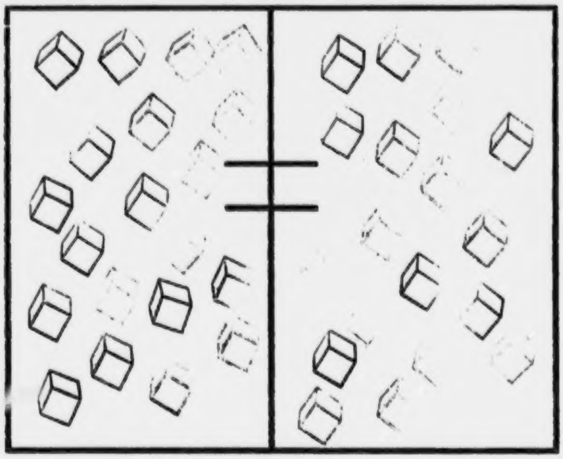
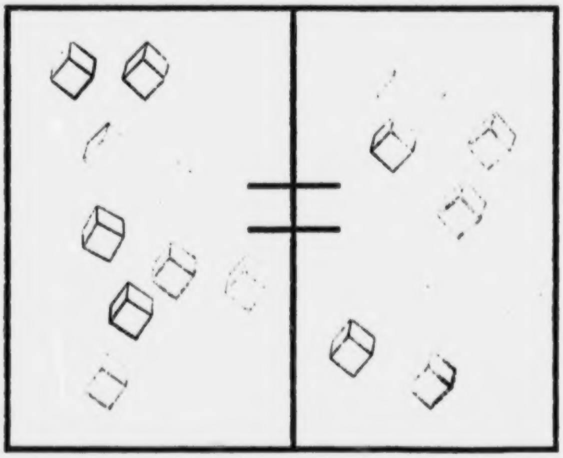




Mathematician:____________________________________

"I made an equality board as shown, grouped the ONES in different ways and wrote as many DIFFERENT number sentences as I had room to write."





Mathematician: ____

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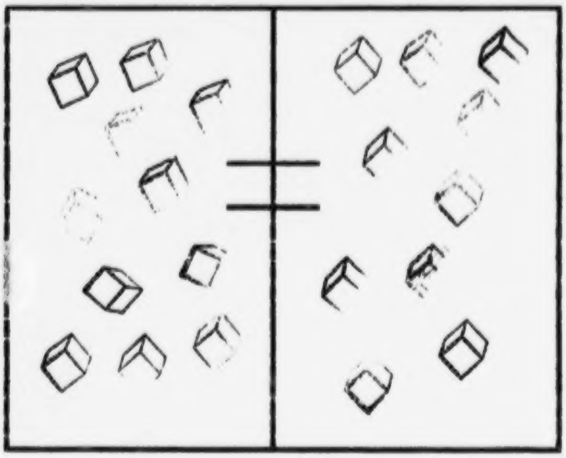
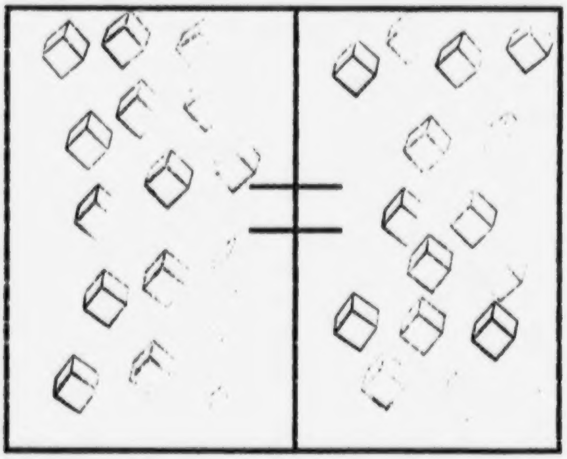
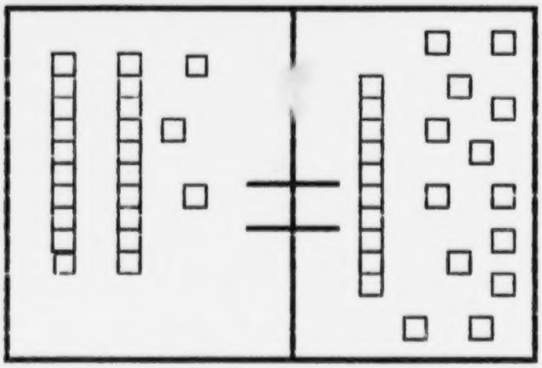
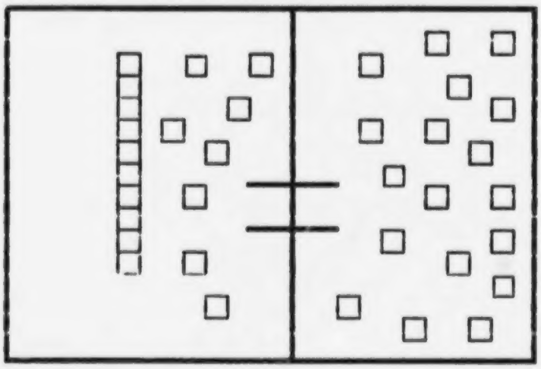




Mathematician:____

"I made an equality board as shown, grouped the ONES in different ways and wrote as many DIFFERENT number sentences as I had room to write." 2.





Mathematician:____________________________________

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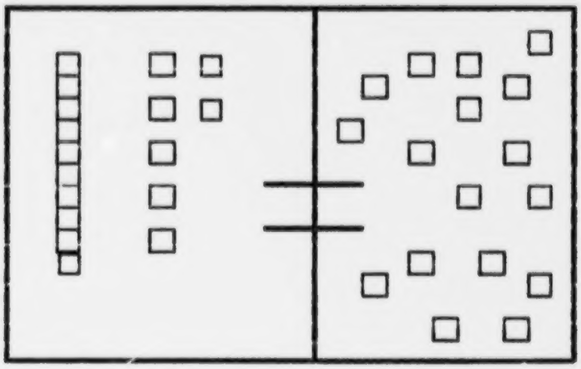
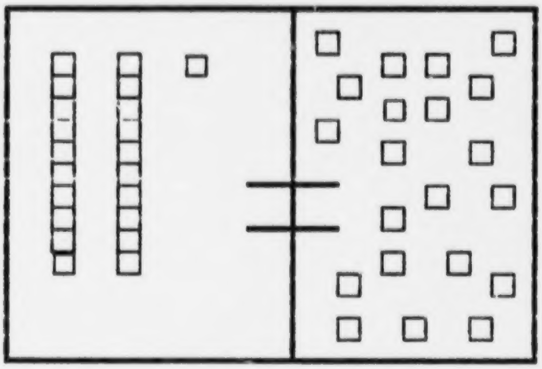
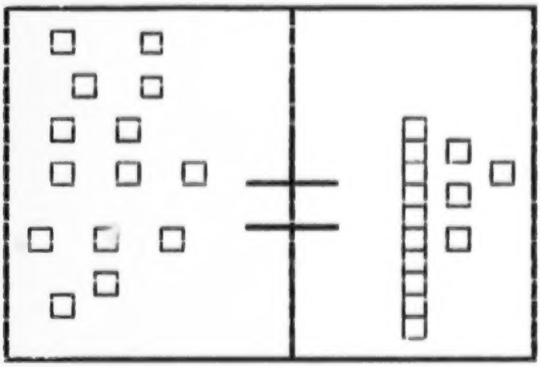
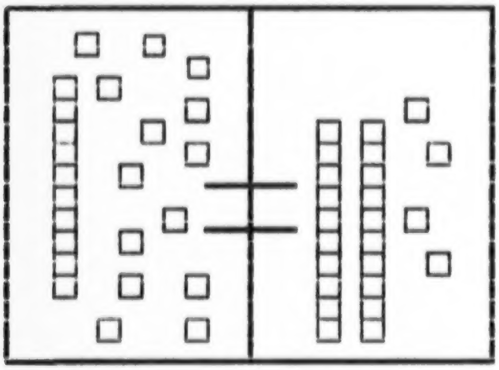




Mathematician:____

"I arranged the equality boards as shown, grouped the ONES on the LEFT side in different ways and wrote the number sentences."





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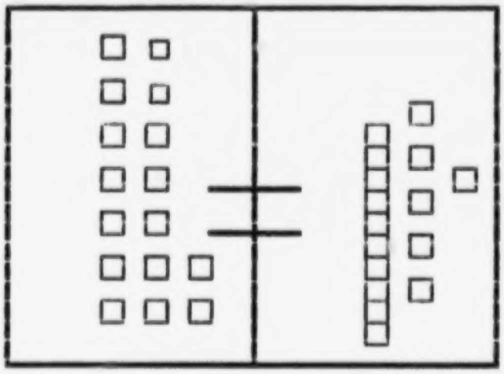
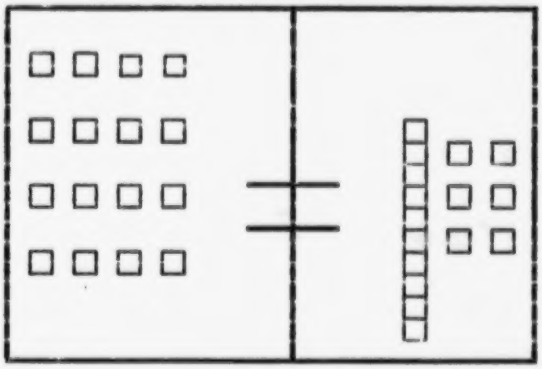
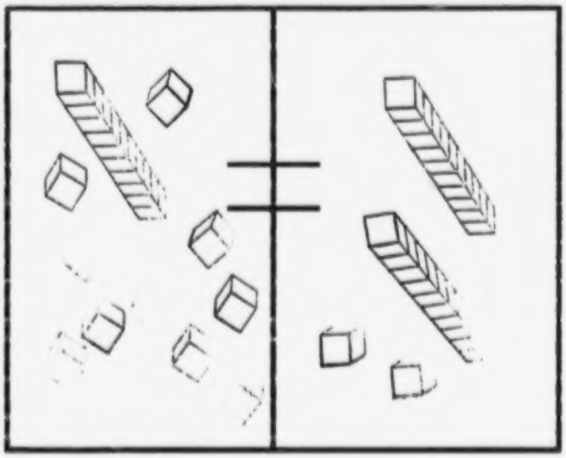
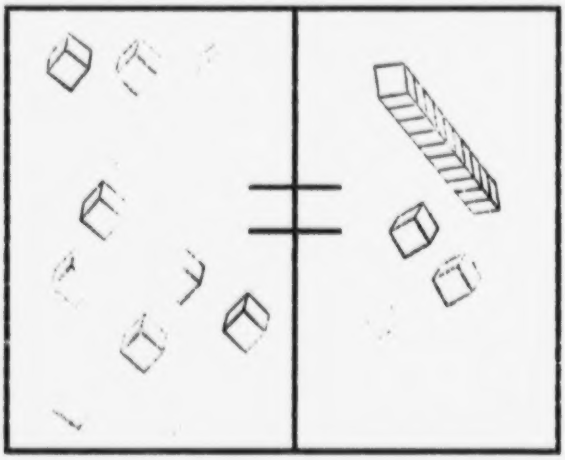




Mathematician:____

"I arranged the base ten pieces as shown, grouped the LEFT side and wrote the number sentences.





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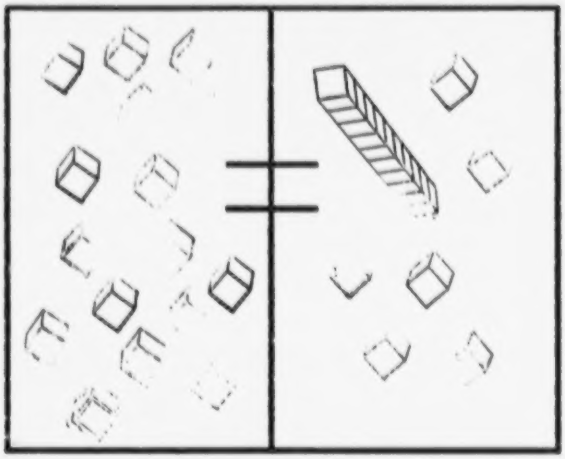

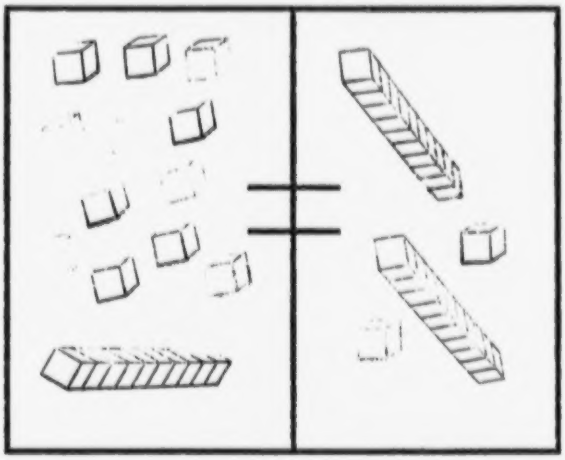

Mathematician: ______________________________

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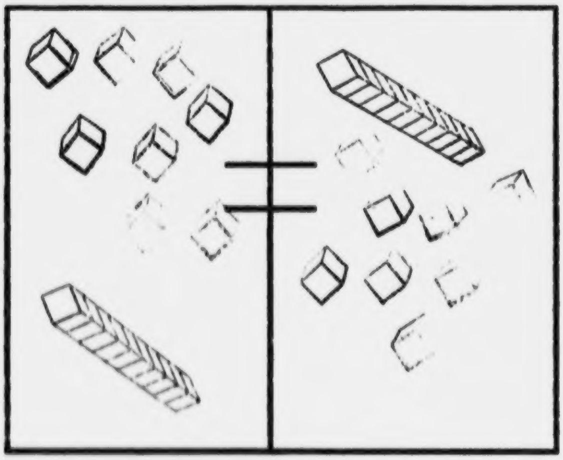

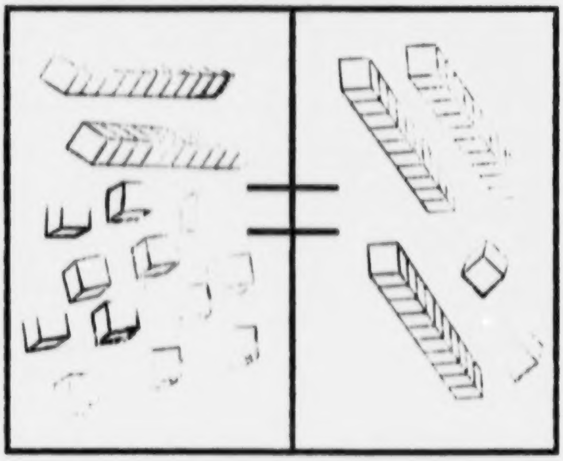

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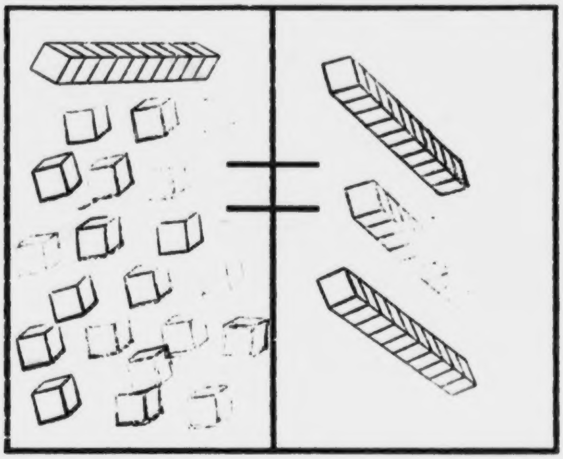
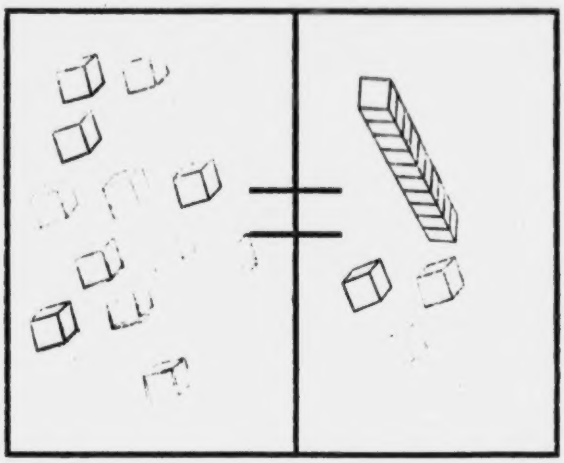
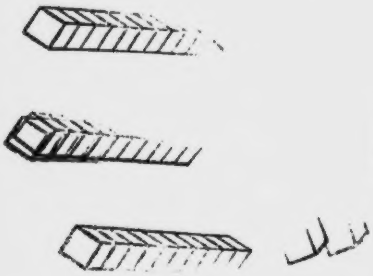
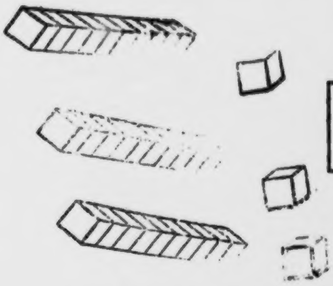
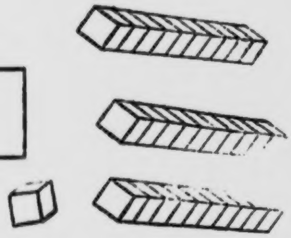
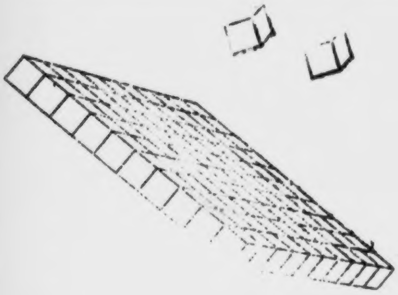
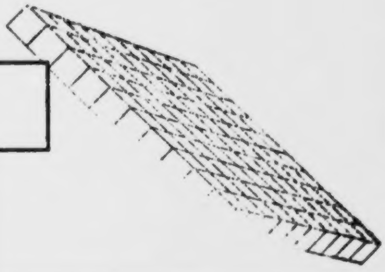
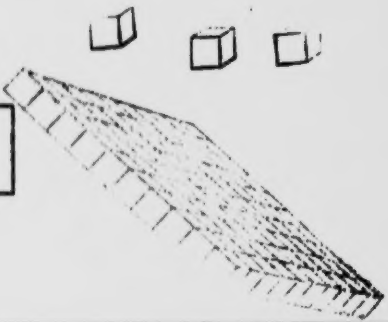
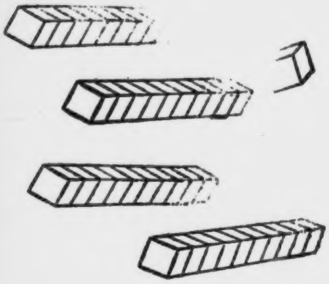
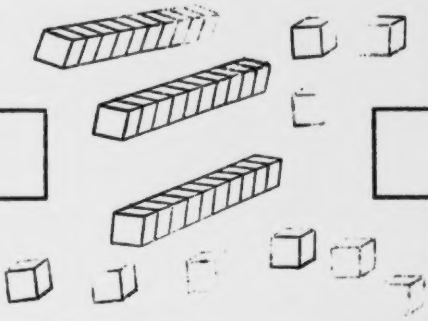
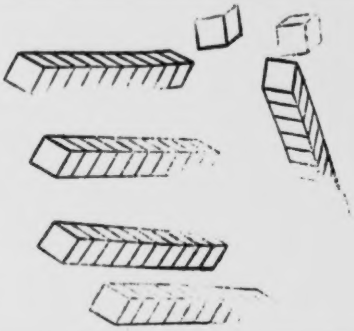
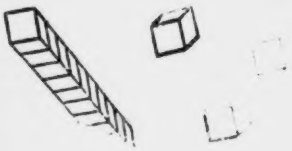
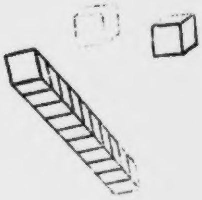
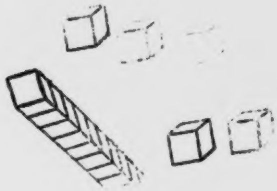




Mathematician:____

"I put the '<' and '>' signs between the base ten numbers to show their sizes."

Mathematician:____

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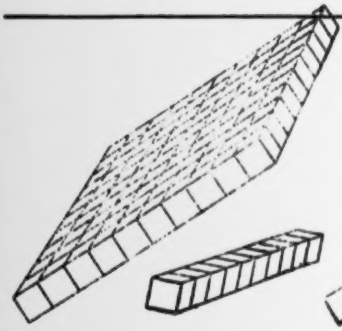
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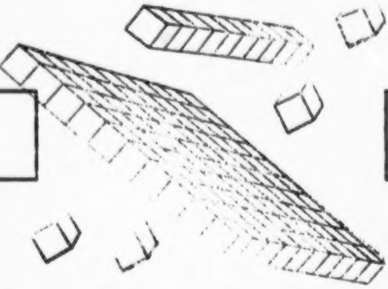
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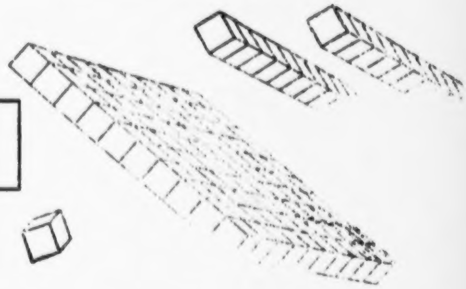

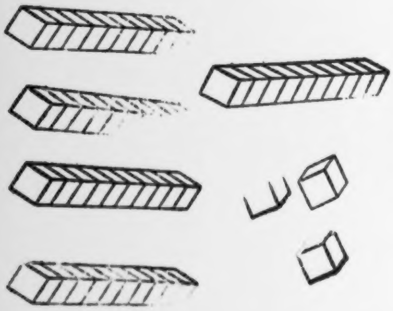
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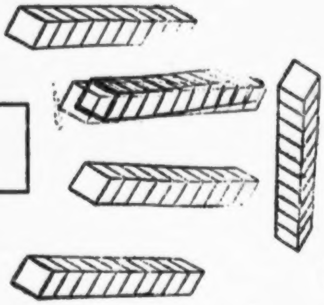
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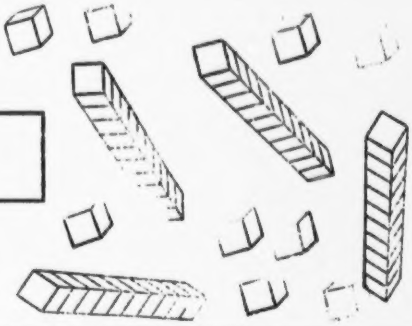

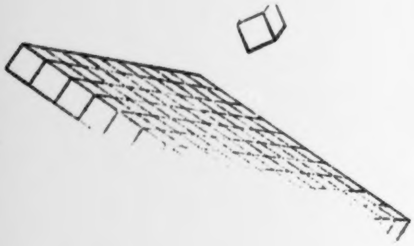
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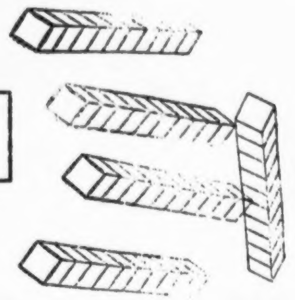
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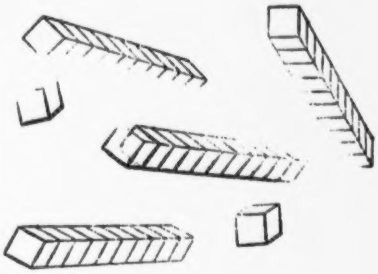

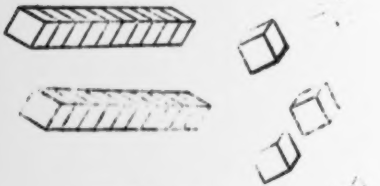
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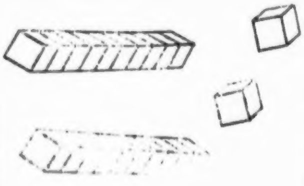
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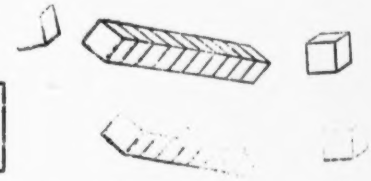

Mathematician:____

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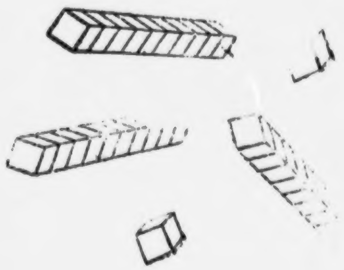

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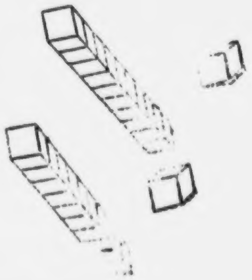

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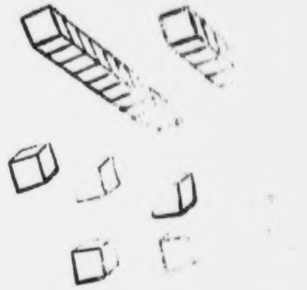

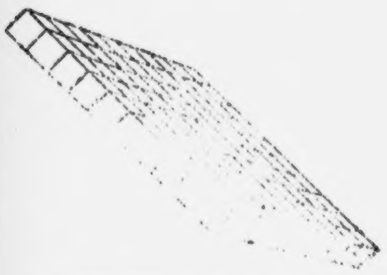

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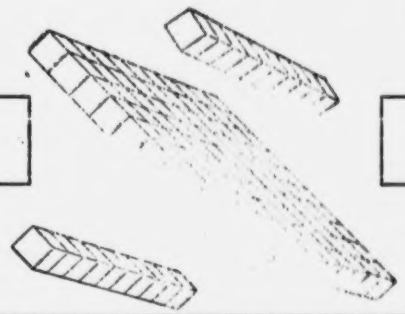

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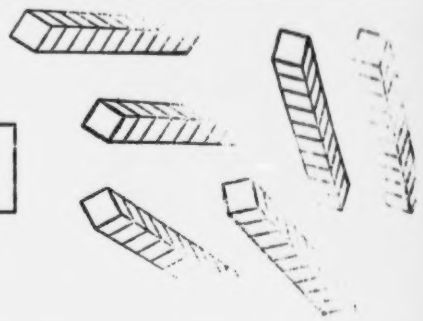

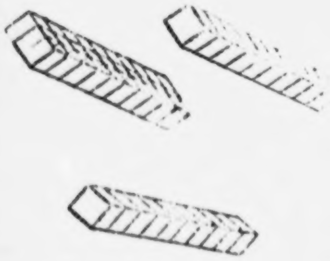

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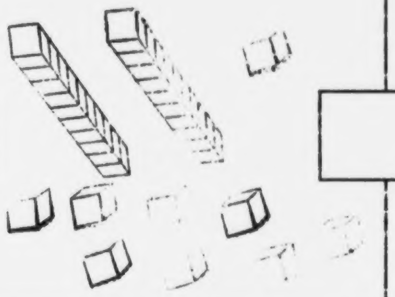

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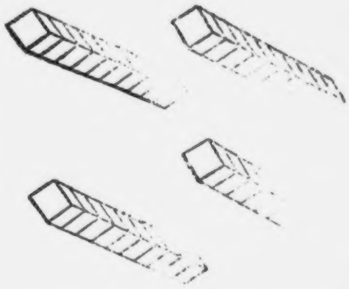

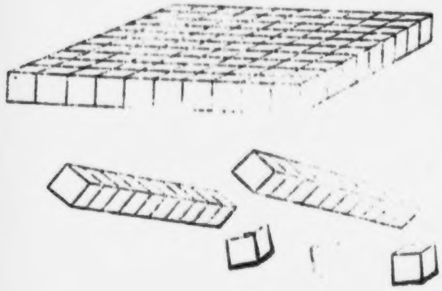

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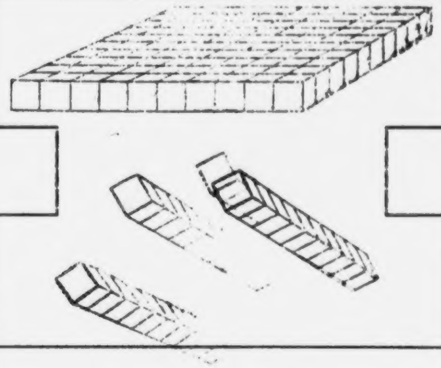

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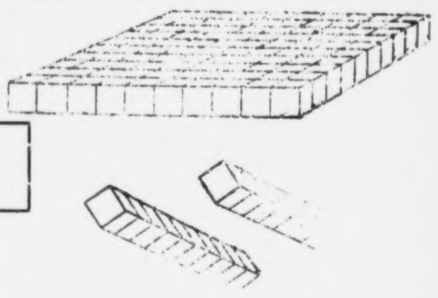
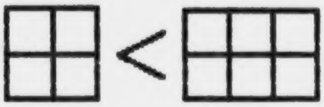


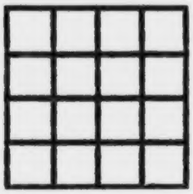
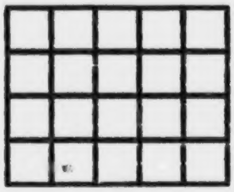
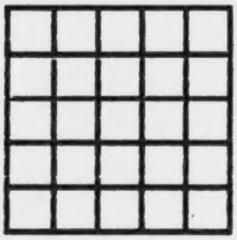
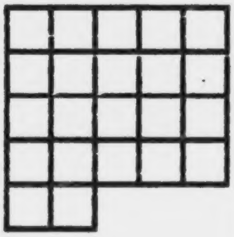
Mathematician:____

"I made tiles arrangements to show two numbers and compared them. I wrote a number sentence using "<" to show this."

Number Words	Tile Pictures	Numerals
Example: Four < Six		4 < 6

Mathematician:____

"For each pair of numbers shown, I finished the section.
I used the "<" sign!"

Numerals	Tile Pictures	Number Words
	 	
14 16		
		Twenty Sixteen
	 	

MATHEMATICIAN:________________________________

"I built these tables by using a number key, ☐ + and ☐ = many times."

Number Entered	Number of Times ☐ = used	Display	Number Sentence
Example 2	4	8	4 × 2 = 8
2	5		
2	6		
2	7		
2	8		
2	9		
2	10		
3	3		
3	4		
3	5		
3	6		
3	7		

MATHEMATICIAN:______________________________

"I built these tables by using a number key, $\boxed{+}$ and $\boxed{=}$ many times."

Number Entered	Number of Times $\boxed{=}$ used	Display	Number Sentence
3	8		
3	9		
3	10		
4	2		
4	3		
4	4		
4	5		
4	6		
4	7		
4	8		
4	9		
4	10		

MATHEMATICIAN:______________________________

"I built these tables by using a number key, + and = many times."

Number Entered	Number of Times = used	Display	Number Sentence
5	2		
5	3		
5	4		
5	5		
5	6		
5	7		
5	9		
5	10		
6	2		
6	3		
6	4		
6	5		

MATHEMATICIAN:______________________________

"Here are some rules I discovered for calculator patterns."

Calculator Pattern	Rule
Example: 1, 2, 3, 4 , 5 , 6	+ 1
2, 4, 6, ___, ___, ___	
3, ___, 9, ___ ,	+ 3
10 ___ ___ ___ ___	+ 5
12, 15, 18, ___ ___ ___	
20, 40, 60, ___ ___ ___	
10, 16, 22, ___ ___ ___	
8, 15, ___ ___ ___	+ 7
9, 11, 13, ___ ___ ___	
10, 8, 6, ___ ___ ___	
20, 16, ___ ___ ___	- 4

Mathematician:____

"I made base ten numbers and displayed them on the calculator."

Base Ten Blocks Used			Buttons Pushed			
Hundreds	Tens	Ones	First	Next	Next	
	4	3	4	3		
			5	2		
1	0	4				
			2	0	1	
4	2	3				
1	1	0				
			4	0	0	
2	3	1				
1	2	8				

Mathematician: ____________________

"This is my record of playing GUESS MY RULE."

In	Out	Rule:	In	Out	Rule:
In	Out	Rule:	In	Out	Rule:
In	Out	Rule:	In	Out	Rule:
In	Out	Rule:	In	Out	Rule:

MATHEMATICIAN: ____________________

Geoboard	Alike?	Different?
1		
2		
3		
4		
5		
6		

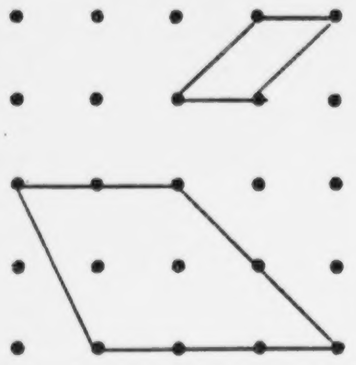
MATHEMATICIAN: ______________________________

Geoboard	Alike?	Different?
7		
8		
9		
10		
11		
12		

Mathematician:____________________________________

"I made these shapes on the geoboard and saw how they were alike and different."

1



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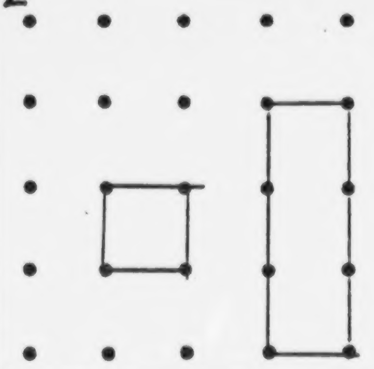

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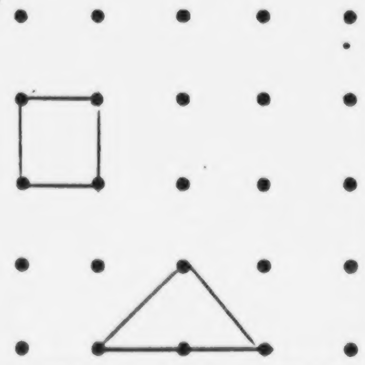

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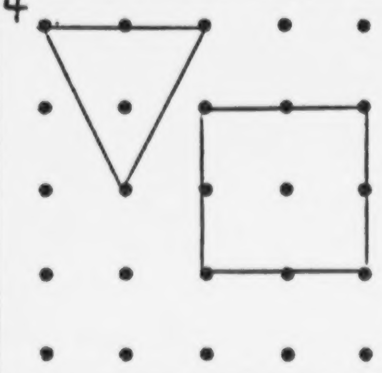

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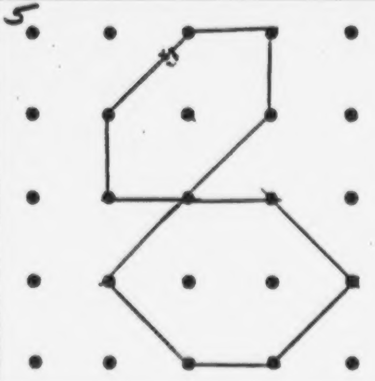

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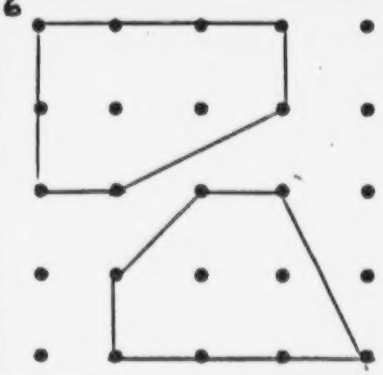

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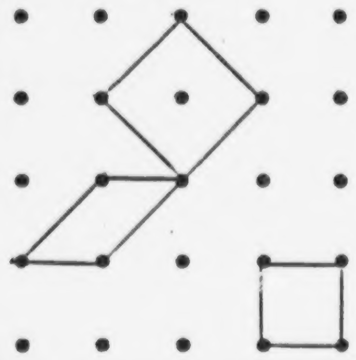

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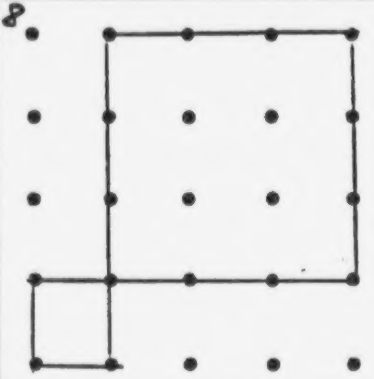

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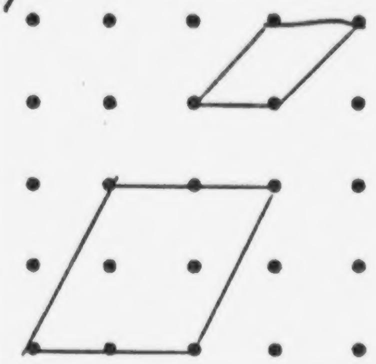

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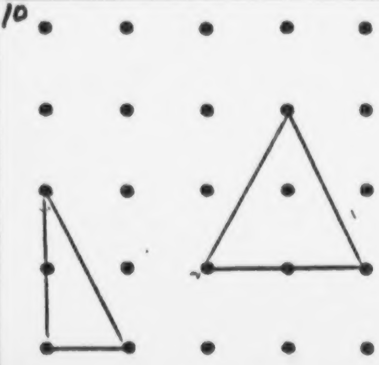

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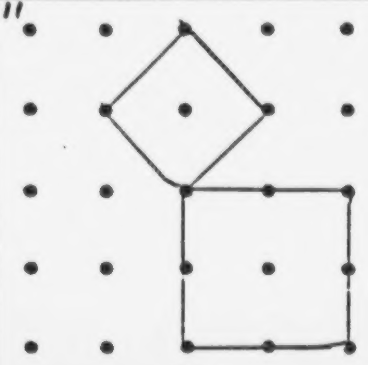

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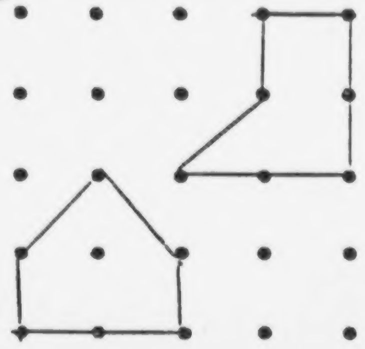
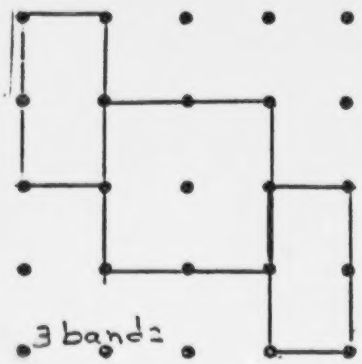
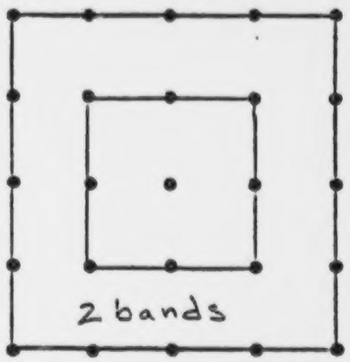


Mathematician:____

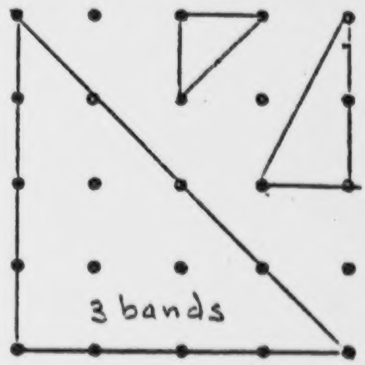
"I used different color bands to make these.
I looked for patterns on the geoboard."



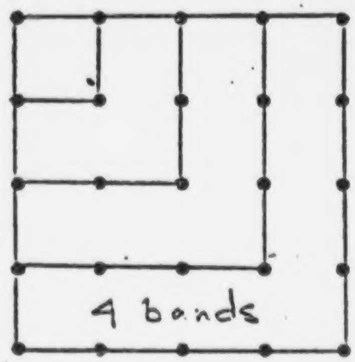
3 bands



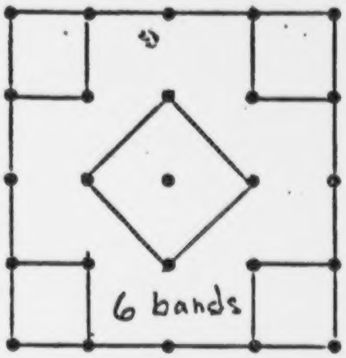
2 bands



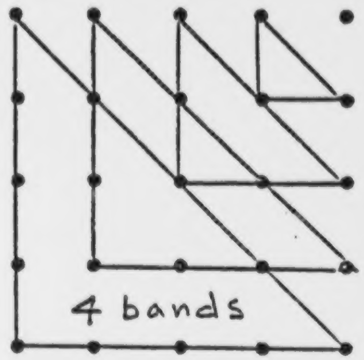
3 bands



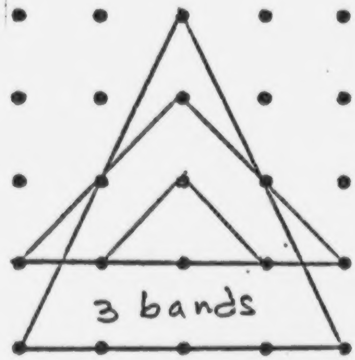
4 bands



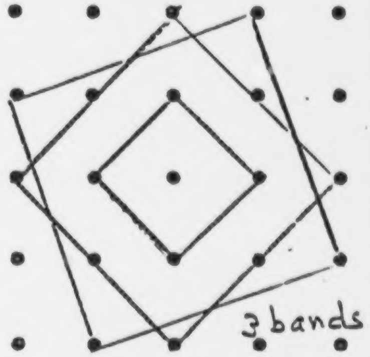
6 bands



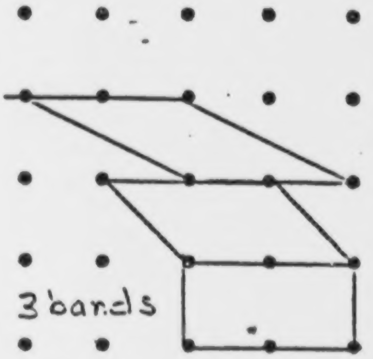
4 bands



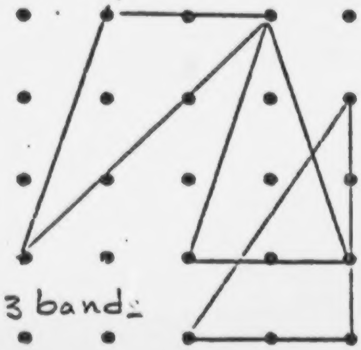
3 bands



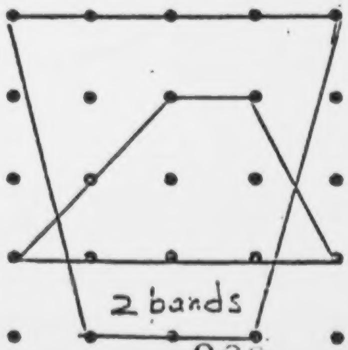
3 bands



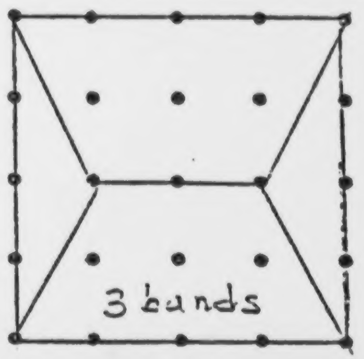
3 bands



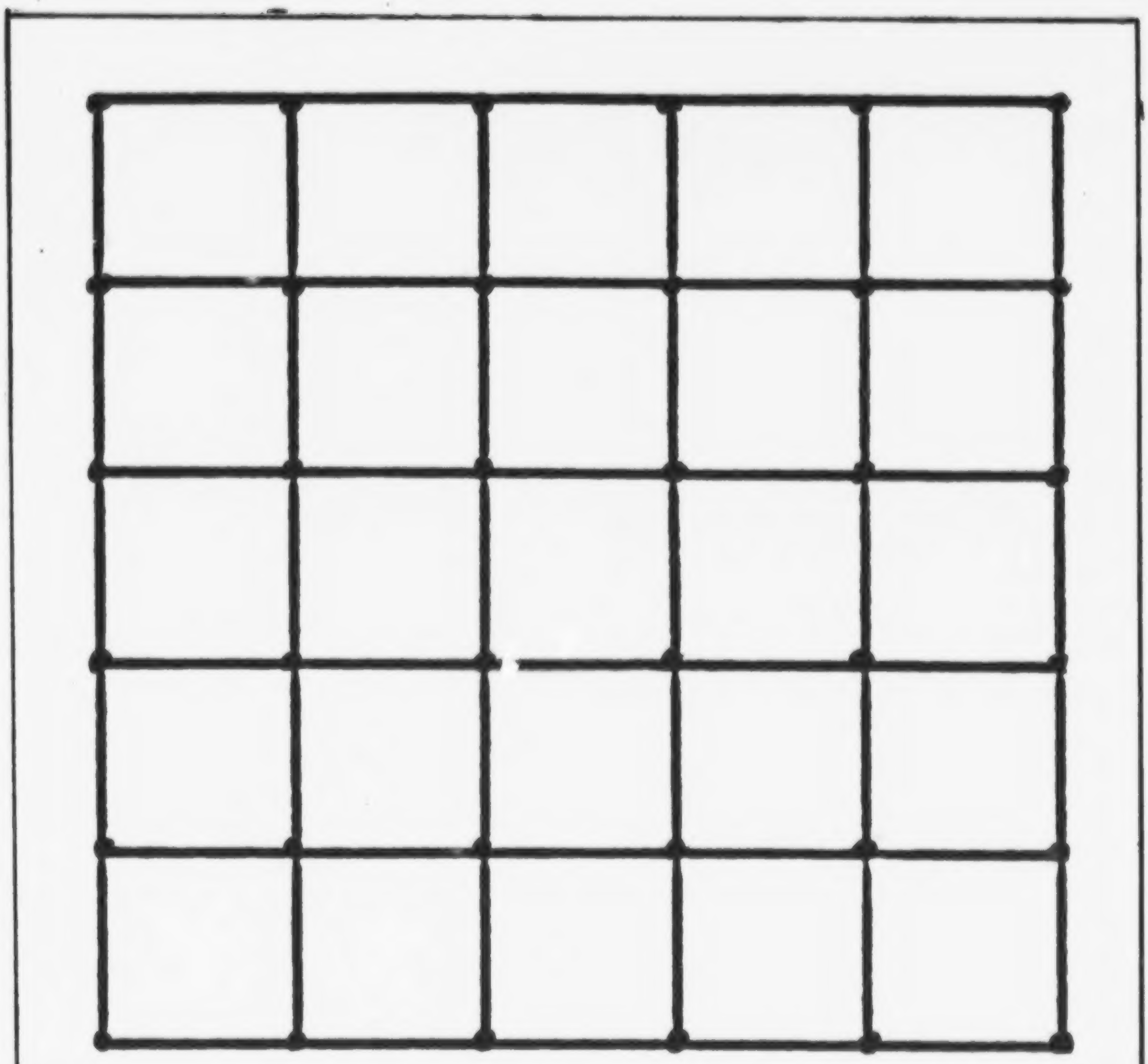
3 bands



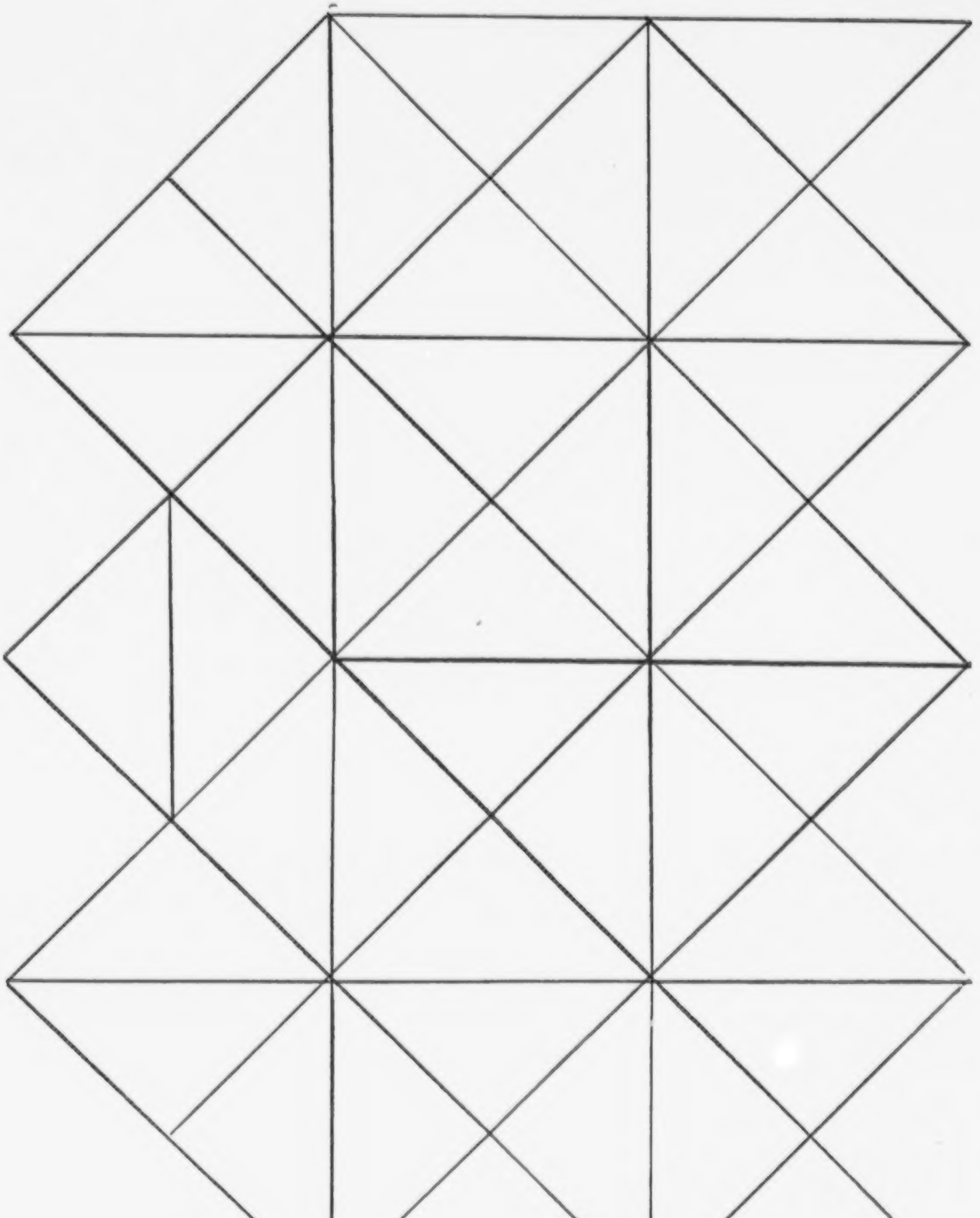
2 bands



3 bands

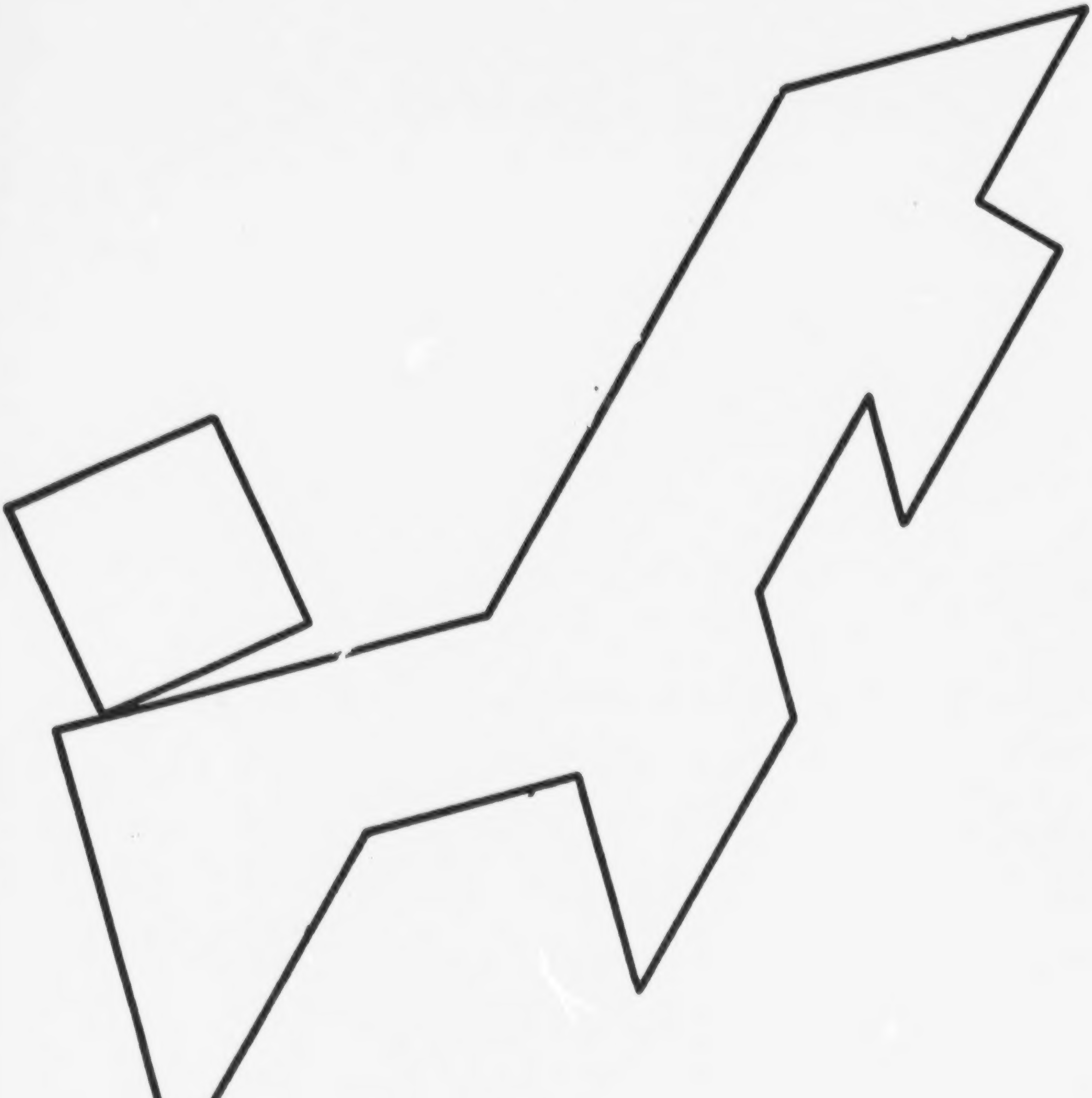


TANGRAM PROBLEM GENERATOR



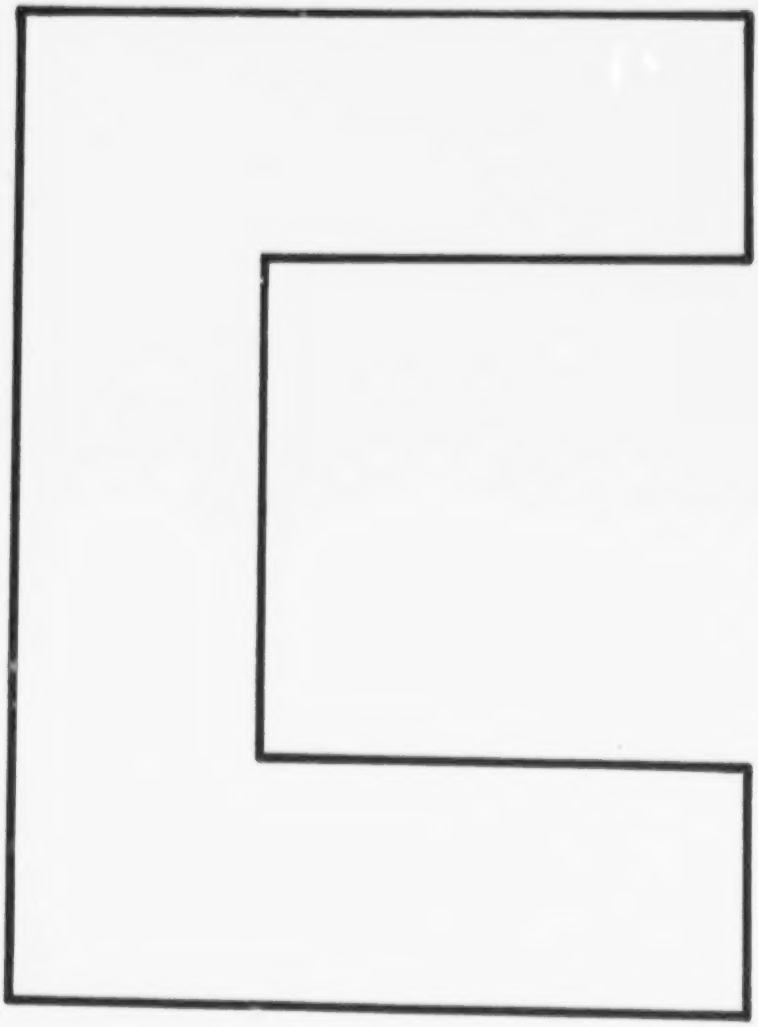
MATHEMATICIAN:______________________________

"I worked the Tangram problems and traced to show where the pieces fit."



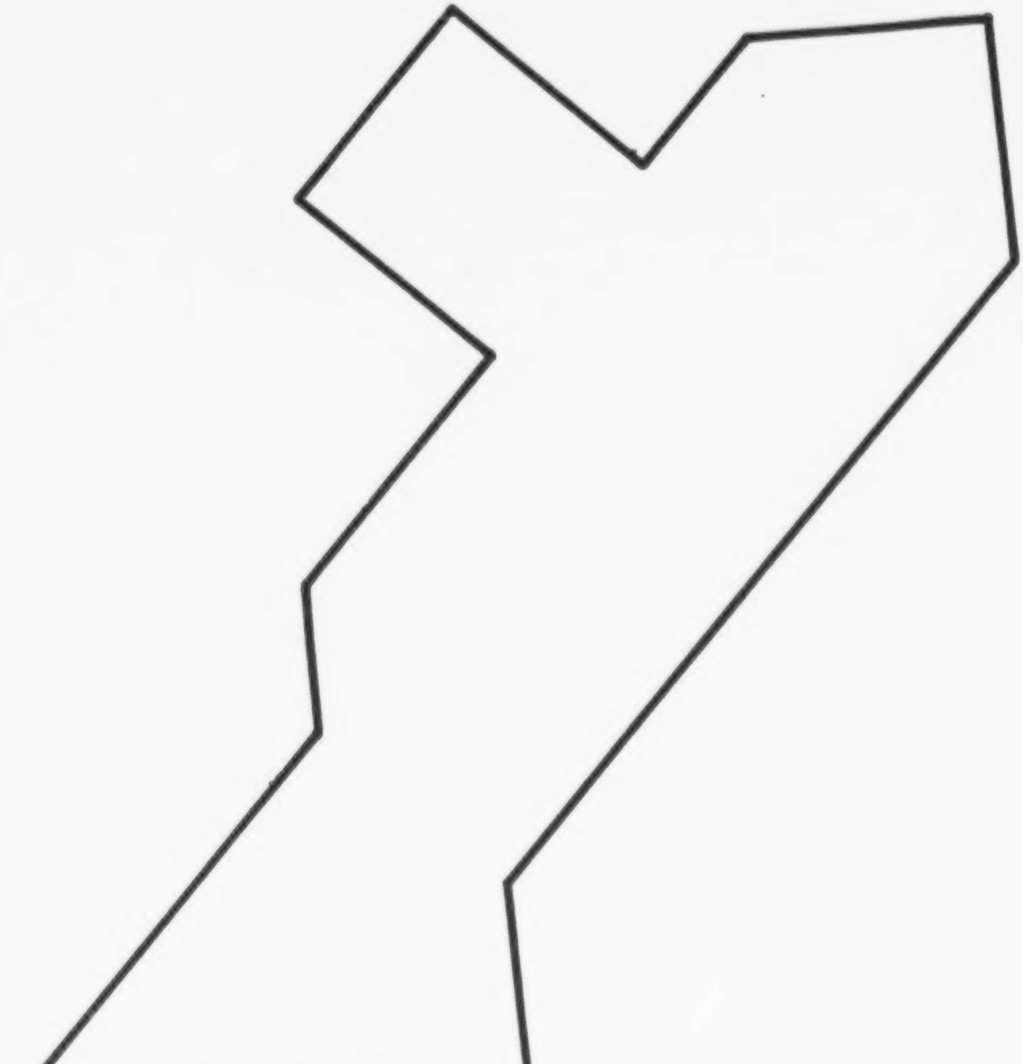
MATHEMATICIAN:________________________________

"I worked the Tangram problems and traced to show where the pieces fit."



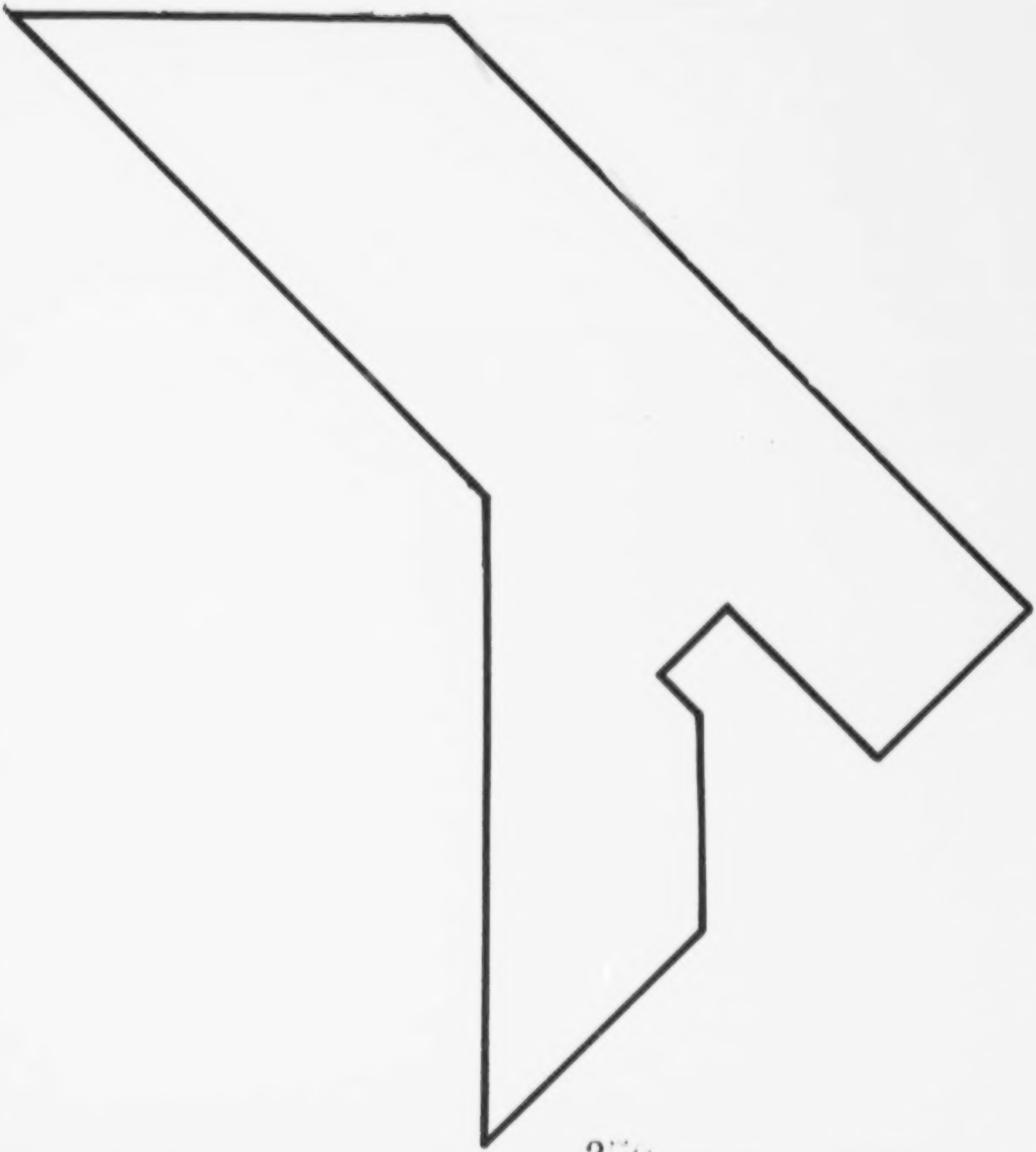
MATHEMATICIAN:________________________________

"I worked the Tangram problems and traced to show where the pieces fit."



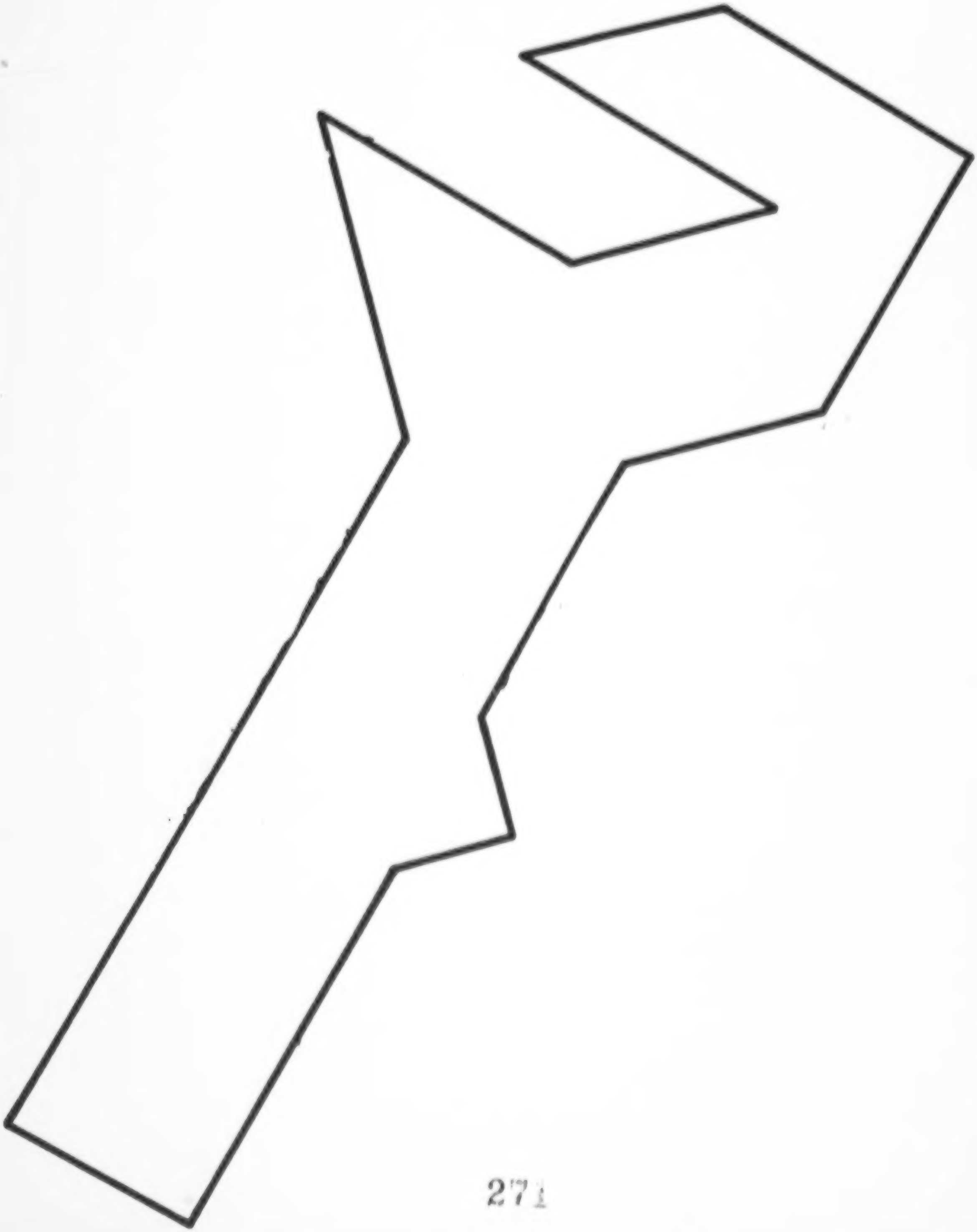
MATHEMATICIAN:________________________________

"I worked the Tangram problems and traced to show where the pieces fit."



MATHEMATICIAN:________________________________

"I worked the Tangram problems and traced to show where the pieces fit."



Mathematician: ______________________________

"Here are measurements made."

Units Used: ______________________________

To the Nearest ______________________________

______ inches
______ centimeters

______ inches
______ centimeters

______ inches
______ centimeters

______ inches
______ centimeters

______ inches
______ centimeters

______ inches
______ centimeters

Mathematician:____

"Our group measured objects in the room."

Units Used:____

Nearest Unit._______________________________________

Length Measured	Measurement

Mathematician:______________________________

What was Measured	Number of ____________s used

Mathematician:________________________________

"I built houses with the given floors and numbers of stories of Multilinks. I found the total number of rooms in these houses."

Floors	Rooms/Story Area	Stories Height	Total Rooms Volume
		2	
		3	
		4	
		5	
		2	
		3	
		4	
		5	

Mathematician:____

"I built houses with the given floors and numbers of stories of Multilinks. I found the total number of rooms in these houses."

Floors	Rooms/Story Area	Stories Height	Total Rooms Volume
		6	
		7	
		8	
		9	
		6	
		7	
		8	
		9	

Mathematician:____

"I used the given number of multilinks to build houses with rectangle or square floors."

Multilinks Used	Floor	Height	Number Sentence
6			
8			
10			
12			
14			

Mathematician:____

"I used the given number of multilinks to build houses with rectangle or square floors."

Multilinks Used	Floor	Height	Number Sentence
16			
12			
20			
22			
24			

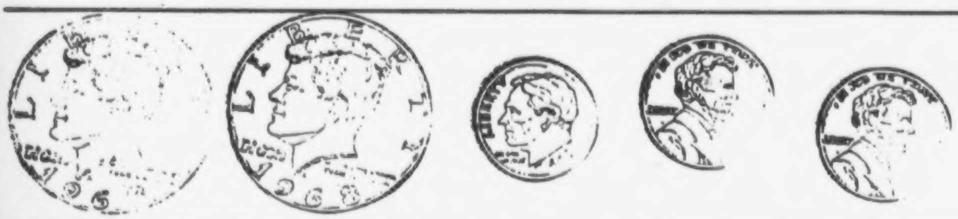
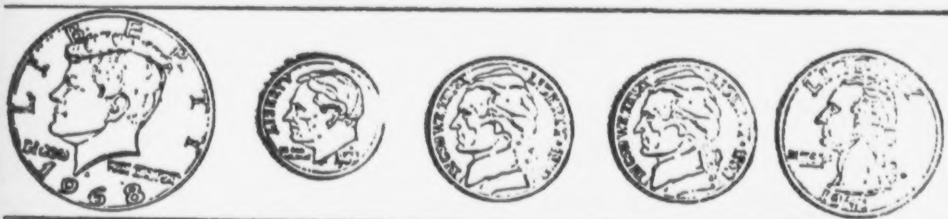
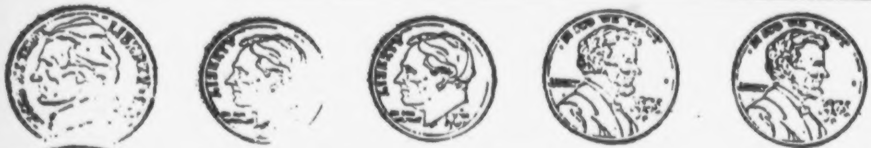
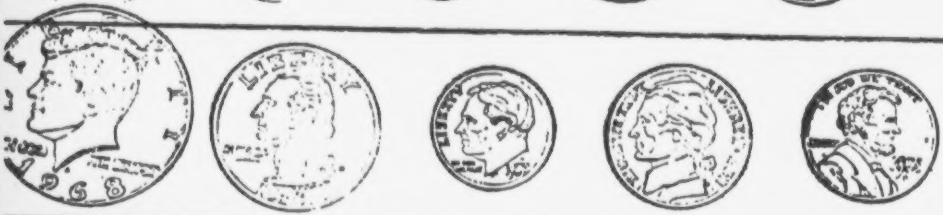
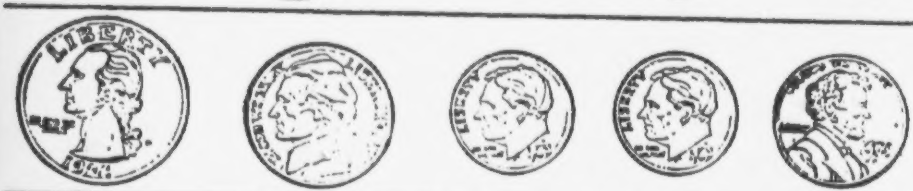
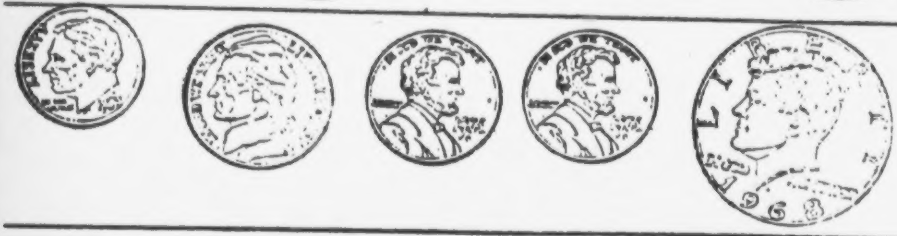
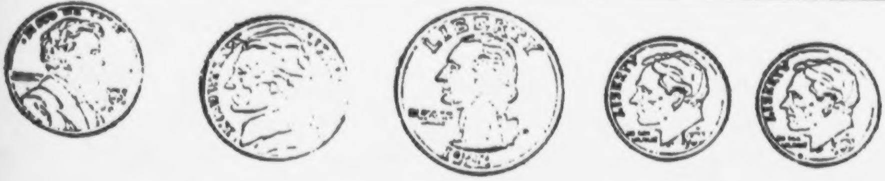
Mathematician:______________________________________

"I used the given number of multilinks to build houses with rectangle or square floors."

Multilinks Used	Floor	Height	Number Sentence
26			
28			
30			
32			
34			

Mathematician:____________________________________

"I found the value of each set of coins and bills given."

COINS	VALUE
	
	
	
	
	
	
	

Mathematician: ____

"I found the value of each set of coins and bills given."

COINS	VALUE